



6560-50-P

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 63**

**[EPA-HQ-OAR-2011-0797; FRL-9934-16-OAR]**

**RIN 2060-AQ92**

**National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** This action finalizes the residual risk and technology review (RTR) conducted for the Primary Aluminum Production source category regulated under national emission standards for hazardous air pollutants (NESHAP). In addition, we are taking final action regarding new and revised emission standards for various hazardous air pollutants (HAP) emitted by this source category based on the RTR, newly obtained emissions test data, and comments we received in response to the 2011 proposal and 2014 supplemental proposal.

These final amendments include technology-based standards and work practice standards reflecting performance of maximum achievable control technology (MACT), and related monitoring,

reporting, and testing requirements, for several previously unregulated HAP from various emissions sources. Furthermore, based on our risk review, we are finalizing new and revised emission standards for certain HAP emissions from potlines using the Soderberg technology to address risk. We are also adding a requirement for electronic reporting of compliance data, eliminating the exemptions for periods of startup, shutdown, and malfunctions (SSM), and not adopting the affirmative defense provisions proposed in 2011, consistent with a recent court decision vacating the affirmative defense provisions. This action will provide improved environmental protection regarding potential emissions of HAP emissions from primary aluminum reduction facilities.

**DATES:** This final action is effective on **[insert date of publication in the Federal Register]**. The incorporation by reference of certain publications listed in the rule is approved by the Director of the **Federal Register** as of **[insert date of publication in the Federal Register]**.

**ADDRESSES:** The Environmental Protection Agency (EPA) has established a docket for this action under Docket ID No. EPA-HQ-OAR-2011-0797. All documents in the docket are listed on the [www.regulations.gov](http://www.regulations.gov) Web site. Although listed in the index, some information is not publicly available, e.g., confidential business information (CBI) or other information whose disclosure

is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through <http://www.regulations.gov>, or in hard copy at the EPA Docket Center, EPA WJC West Building, Room Number 3334, 1301 Constitution Ave., NW, Washington, DC. The Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m. Eastern Standard Time (EST), Monday through Friday. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

**FOR FURTHER INFORMATION CONTACT:** For questions about this final action, contact Mr. David Putney, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, 27711; telephone number: (919) 541-2016; fax number: (919) 541-3207; and email address: [putney.david@epa.gov](mailto:putney.david@epa.gov). For specific information regarding the risk modeling methodology, contact Mr. Jim Hirtz, Health and Environmental Impacts Division (C539-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-0881; fax number: (919) 541-0840; and email address: [hirtz.james@epa.gov](mailto:hirtz.james@epa.gov). For information about the applicability of

the NESHAP to a particular entity, contact Mr. Patrick Yellin, Office of Enforcement and Compliance Assurance, U.S.

Environmental Protection Agency, EPA WJC South Building, 1200 Pennsylvania Ave., NW, Washington, DC 20460; telephone number: (202) 564-2970; and email address: yellin.patrick@epa.gov.

**SUPPLEMENTARY INFORMATION:**

Preamble Acronyms and Abbreviations. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

AERMET	AERMOD Meteorological Preprocessor
AERMOD	American Meteorological Society and EPA Regulatory Model
As	arsenic
BLDS	bag leak detection systems
BLP	Buoyant Line and Point source model
CAA	Clean Air Act
CBI	confidential business information
CDX	Central Data Exchange
CEMS	continuous emission monitoring system
CFR	Code of Federal Regulations
CRA	Congressional Review Act
CWPB1	center-worked prebake one
CWPB2	center-worked prebake two
CWPB3	center-worked prebake three
D/F	dioxins and furans
dscm	dry standard cubic meter
ERT	Electronic Reporting Tool
FR	Federal Register
HAP	hazardous air pollutant(s)
HEM3	Human Exposure Model version 3
Hg	mercury

HQ	hazard quotient
IBR	incorporation by reference
ICR	information collection request
lb	pound(s)
lb/ton	pound(s) per ton
lb/yr	pound(s) per year
MACT	maximum achievable control technology
MIR	maximum individual risk
NESHAP	National Emission Standards for Hazardous Air Pollutants
Ni	nickel
NTTAA	National Technology Transfer and Advancement Act
PCB	polychlorinated biphenyls
PM	particulate matter
PM <sub>2.5</sub>	PM with diameter of 2.5 microns and less
POM	polycyclic organic matter
PRA	Paperwork Reduction Act
RDL	representative detection limit
REL	reference exposure level
RFA	Regulatory Flexibility Act
RIA	Regulatory Impact Analysis
RIN	Regulatory Information Number
RTR	Residual Risk and Technology Review
SSM	startup, shutdown, and malfunction
SWPB	side-worked prebake
TEQ	toxicity equivalence
TOSHI	target organ-specific hazard index
TTN	Technology Transfer Network
µg	microgram(s)
µg/dscm	microgram(s) per dry standard cubic meter
UMRA	Unfunded Mandates Reform Act
UPL	upper prediction limit
VE	visible emissions
VSS2	vertical stud Soderberg two

Background Information. On December 6, 2011, and December 8, 2014, the EPA proposed revisions to the Primary Aluminum Reduction Plants NESHAP based on our RTR and MACT review. After considering public comments, in this action, we are finalizing

decisions and revisions for the rule. We summarize some of the more significant comments we timely received regarding the 2011 and 2014 proposed rules and provide our responses in this preamble. A summary of all other public comments on the proposals and the EPA's responses to those comments is available in the National Emission Standards for Hazardous Air Pollutants: Primary Aluminum Reduction Plants Summary of Public Comments and Responses document, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797). A "track changes" version of the regulatory language that incorporates the changes in this action is also available in the docket for this action.

Organization of this Document. The information in this preamble is organized as follows:

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- E. Executive Order 13132: Federalism
- F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

- G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks
- H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use
- I. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR part 51
- J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations
- K. Congressional Review Act (CRA)

## I. General Information

### A. Does this action apply to me?

Regulated Entities. Categories and entities potentially regulated by this action are shown in Table 1 of this preamble.

Table 1. NESHAP and Industrial Source Categories Affected By This Final Action

NESHAP and Source Category	NAICS <sup>a</sup> Code
Primary Aluminum Reduction Plants	331312

<sup>a</sup> North American Industry Classification System.

Table 1 of this preamble is not intended to be exhaustive, but rather to provide a guide for readers regarding entities likely to be affected by the final action for the source category listed. To determine whether your facility is affected, you should examine the applicability criteria in the appropriate NESHAP. If you have any questions regarding the applicability of any aspect of this NESHAP, please contact the appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section of this preamble.



B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this final action will also be available on the Internet through the Technology Transfer Network (TTN) Web site, a forum for information and technology exchange in various areas of air pollution control. Following signature by the EPA Administrator, the EPA will post a copy of this final action at <http://www.epa.gov/ttn/atw/alum/alumpg.html>. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version and key technical documents at this same Web site.

Additional information is available on the RTR Web site at <http://www.epa.gov/ttn/atw/rrisk/rtrpg.html>. This information includes an overview of the RTR program, links to project Web sites for the RTR source categories and detailed emissions and other data we used as inputs to the risk assessments.

C. Judicial Review and Administrative Reconsideration

Under Clean Air Act (CAA) section 307(b)(1), judicial review of this final action is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit by **[insert date 60 days after date of publication in the Federal Register]**. Under CAA section 307(b)(2), the requirements established by this final rule may

not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce the requirements.

Section 307(d)(7)(B) of the CAA further provides that "[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review." This section also provides a mechanism for the EPA to reconsider the rule "[i]f the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule." Any person seeking to make such a demonstration should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000, EPA WJC North Building, 1200 Pennsylvania Ave., NW, Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave., NW, Washington, DC 20460.

## **II. Background**

### A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of HAP from stationary sources. In the first stage, we must identify categories of sources emitting one or more of the HAP listed in CAA section 112(b) and then promulgate technology-based NESHAP for those sources. "Major sources" are those that emit, or have the potential to emit, any single HAP at a rate of 10 tons per year (tpy) or more, or 25 tpy or more of any combination of HAP. For major sources, these standards are commonly referred to as MACT standards and must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). In developing MACT standards, CAA section 112(d)(2) directs the EPA to consider the application of measures, processes, methods, systems, or techniques, including, but not limited to, those that reduce the volume of or eliminate HAP emissions through process changes, substitution of materials, or other modifications; enclose systems or processes to eliminate emissions; collect, capture, or treat HAP when released from a process, stack, storage, or fugitive emissions point; are design, equipment, work practice, or operational standards; or any combination of the above.

For these MACT standards, the statute specifies certain minimum stringency requirements, which are referred to as MACT

floor requirements and which may not be based on cost considerations. See CAA section 112(d)(3). For new sources, the MACT floor cannot be less stringent than the emission control achieved in practice by the best-controlled similar source. The MACT standards for existing sources can be less stringent than floors for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, we must also consider control options that are more stringent than the floor under CAA section 112(d)(2). We may establish standards more stringent than the floor, based on the consideration of the cost of achieving the emissions reductions, any non-air quality health and environmental impacts, and energy requirements.

In the second stage of the regulatory process, the CAA requires the EPA to undertake two different analyses, which we refer to as the technology review and the residual risk review. Under the technology review, we must review the technology-based standards and revise them "as necessary (taking into account developments in practices, processes, and control technologies)" no less frequently than every 8 years, pursuant to CAA section 112(d)(6). Under the residual risk review, we must evaluate the

risk to public health remaining after application of the technology-based standards and revise the standards, if necessary, to provide an ample margin of safety to protect public health or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. The residual risk review is required within 8 years after promulgation of the technology-based standards, pursuant to CAA section 112(f). In conducting the residual risk review, if the EPA determines that the current standards provide an ample margin of safety to protect public health, it is not necessary to revise the MACT standards pursuant to CAA section 112(f).<sup>1</sup> For more information on the statutory authority for this rule, see 76 FR 76259 and 79 FR 72914.

Today's amendments involve rule changes pursuant to these authorities. Specifically, pursuant to CAA sections 112(d)(2) and (3), and 112(h), the EPA is amending the NESHAP to add standards for HAP not previously addressed. In addition, pursuant to CAA section 112(f), the EPA is amending certain MACT standards already promulgated to address risk. The EPA also conducted a technology review and determined that no further

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<sup>1</sup> The U.S. Court of Appeals has affirmed this approach of implementing CAA section 112(f)(2)(A). See NRDC v. EPA, 529 F.3d 1077, 1083 (D.C. Cir. 2008) ("If EPA determines that the existing technology-based standards provide an 'ample margin of safety,' then the Agency is free to readopt those standards during the residual risk rulemaking.").

changes to the rule are necessary (within the meaning of CAA section 112 (d) (6)) to reflect developments in practices, processes, and control technologies other than the work practices for anode bake furnaces and paste plants during startup periods, and work practices for potlines during normal operations (to help minimize POM, TF, and PM emissions), described in the 2011 and 2014 proposals.

B. What is the Primary Aluminum Production source category and how does the NESHAP regulate HAP emissions from the source category?

The EPA promulgated the Primary Aluminum Reduction Plants NESHAP, which apply to the Primary Aluminum Production source category, on October 7, 1997 (62 FR 52407). The rule was amended on November 2, 2005 (70 FR 66280). The associated standards are codified at 40 CFR part 63, subpart LL.

The Primary Aluminum Production source category consists of facilities that produce aluminum from refined bauxite ore (also known as alumina), using an electrolytic reduction process in a series of cells called a "potline." The two main potline types are prebake (a newer, higher-efficiency, lower-emitting technology) and Soderberg (an older, lower-efficiency, higher-emitting technology). The raw materials include alumina, petroleum coke, pitch, and fluoride salts. According to information available on the Web site of The Aluminum

Association, Inc. (<http://www.aluminum.org>), approximately 40 percent of the aluminum produced in the U.S. comes from primary aluminum facilities. The other 60 percent either comes from Secondary Aluminum Production facilities or is imported.

Primary aluminum reduction facilities emit HAP from four basic processes: pitch storage tanks, paste production plants, anode bake furnaces, and potlines. Operators form anode paste in the paste production plant from a mixture of petroleum coke and pitch. In a prebake facility, this anode paste is then formed into anodes and baked in an anode bake furnace. Operators subsequently place these "prebaked" anodes into a prebake potline where they are consumed via the electrolytic reduction process. Soderberg facilities do not have anode bake furnaces. Instead, the anode paste is fed directly into the Soderberg potlines and baked in place to form anodes, which again are consumed via the electrolytic reduction process.

There are currently 11 facilities located in the United States that are subject to the requirements of this NESHAP: 10 primary aluminum reduction plants and one carbon-only prebake anode production facility. These 10 primary aluminum reduction plants have approximately 35 potlines that produce aluminum. Each of the 10 primary aluminum reduction plants has a paste production plant and at least one anode bake furnace (for a total of about 22 existing anode bake furnaces). However, not

all existing paste production plants and anode bake furnaces are currently operating, as some facilities obtain their prebaked anodes from the carbon-only prebake anode production facility. All currently operating primary aluminum facilities use prebake potlines.

At the time of the 2011 proposal, there were two facilities in the U.S. that used Soderberg potlines. One of those facilities (Massena East) was operating at that time, and the other (Columbia Falls) was idle. However, in 2014, before publication of the supplemental proposal, the Massena East facility was permanently shut down. Therefore, at the time we published the supplemental proposal, there was only one Soderberg facility (Columbia Falls) in the U.S., which was idle. After publication of the 2014 supplemental proposal, we learned that the one remaining idle Soderberg facility located in Columbia Falls was permanently shut down. We also learned that one prebake facility (run by Ormet Primary Aluminum Corporation) was shut down. Therefore, currently there are 10 existing facilities with potlines (all prebake facilities) in the source category plus the one facility without potlines that only produces anodes.

The major HAP emitted by these facilities are carbonyl sulfide (COS), hydrogen fluoride (HF), particulate HAP metals



and polycyclic organic matter (POM), specifically polycyclic aromatic hydrocarbons (PAH).

The current Primary Aluminum Reduction Plants NESHAP (as they existed before today's final action) included MACT standards (promulgated in 1997 and 2005) for emissions of total fluorides (TF) (as a surrogate for HF) from anode bake furnaces and potlines and for emissions of POM from paste production plants, anode bake furnaces, Soderberg potlines, and new pitch storage tanks.

C. What changes did we propose for the Primary Aluminum Production source category in our December 6, 2011, proposal and our December 8, 2014, proposal?

On December 6, 2011, and December 8, 2014, the EPA published proposed rules in the **Federal Register** for the Primary Aluminum Reduction Plants NESHAP, 40 CFR part 63, subpart LL, that took into consideration the RTR analyses and other reviews of the rule. In the proposed rules, we proposed several minor clarifications and corrections, and the items summarized in Table 2, below.

Table 2. Summary of Changes Proposed Pursuant to Analyses Associated with this Action

Action	Proposal	As a result of which analysis
2011 proposal (76 FR 76259)	COS emission limits for new and existing potlines	CAA section 112(d)(2) and (3)
	POM emission limits for new and existing prebake potlines and existing pitch storage	

	tanks	
	Work practices for anode bake furnaces during startup periods	CAA section 112(d)(6) Technology review
	Work practices for potlines during startup periods	CAA section 112(h)
	Revised POM emission limits for Soderberg potlines	CAA section 112(f) Risk Review
2014 proposal (79 FR 72914)	Revised POM emission limits for new and existing prebake potlines	CAA section 112(d)(2) and (3)
	Emission limits for particulate matter (PM) for new and existing potlines, anode bake furnaces and paste production plants	
	Revised work practice standards for potlines	
	Reduced testing frequencies for potlines	CAA section 112(d)(2) and (3)
	Work practices for paste production plants during startup periods	CAA section 112(d)(6) Technology Review
	Nickel (Ni), arsenic (As) and revised POM emission limits for Soderberg potlines	CAA section 112(f) Risk Review

### III. What is included in this final rule?

This action finalizes the EPA's determinations pursuant to the RTR provisions of CAA section 112 for the Primary Aluminum Production source category, finalizes our reviews of other aspects of the rule, and amends the Primary Aluminum Reduction Plants NESHAP based on those determinations and reviews. The changes being finalized in this action include the following: the promulgation of MACT floor-based limits for previously unregulated HAP (e.g., COS and PM); emissions limits for POM, As, and Ni from Soderberg potlines to address risk; the addition

of work practice standards for paste production plants, potlines and anode bake furnaces; and the removal of SSM exemptions. This final action includes several changes to the proposed requirements in the December 2011 and December 2014 proposals based on consideration of comments and information received during the public comment periods as described in section IV of this preamble.

A. What are the final rule amendments based on the risk review for the Primary Aluminum Production source category?

This section provides a summary of the final amendments to the Primary Aluminum Reduction Plants NESHAP being promulgated in this action pursuant to CAA section 112(f).

To address risk, we are promulgating emission limits for POM, As, and Ni from existing vertical stud Soderberg two (VSS2) potlines at the following levels: 1.9 pounds (lb) POM/ton of aluminum produced, 0.006 lb As/ton of aluminum produced, and 0.07 lb Ni/ton of aluminum produced.

To address risk, we are promulgating As and Ni emission limits for new Soderberg potlines at the following levels: 0.006 lb As/ton of aluminum produced and 0.07 lb Ni/ton of aluminum produced. New or reconstructed Soderberg potlines would also be subject to the POM limit of 0.77 lb per ton of aluminum produced that we are promulgating for all new potlines. These emission limits for POM, Ni, and As for new and existing Soderberg plants

being promulgated in this rule are the same as the limits proposed in the 2014 supplemental proposal. Additional information regarding the limits addressing risk is available in the Development of Emissions Standards to Address Risks for the Primary Aluminum Production Source Category Pursuant to Section 112(f) of the Clean Air Act, which is available in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2011-0797). As noted earlier, the last remaining Soderberg primary aluminum facility in the U.S. announced the permanent closure of that facility after publication of the supplemental proposal in 2014. Notwithstanding our well-supported expectation that this facility will not reopen and that no new Soderberg facilities will be constructed due to the less efficient and higher emitting nature of the Soderberg technology, we are finalizing, as proposed, the standards for POM, As, and Ni associated with Soderberg facilities in the final rule to address the risk from existing potlines at the Columbia Falls facility that have not yet been demolished and to ensure that risks would be acceptable and to provide an ample margin of safety in the very unlikely event that a new Soderberg facility is ever built.

B. What are the final rule amendments based on the technology review for the Primary Aluminum Production source category?

Based on our analyses of the data and information collected and our general understanding of the industry and other

available information on potential controls for this industry, we have determined that there are no developments in practices, processes, and control technologies that warrant revisions to the MACT standards for this source category, other than the work practices for anode bake furnaces during startup periods (described in the December 2011 proposal), the work practices for paste plants during startup (described in the 2014 proposal) and work practices for potlines (to minimize emissions of PM, TF and POM) during normal operations (described in the 2014 supplemental proposal). We are promulgating these work practices as proposed for anode bake furnaces and paste plants during startup periods, and for potlines during normal operations, under section 112(d)(6) of the CAA. These standards apply to both new and existing sources using either of the production technologies.

In summary, we are not revising the MACT standards under CAA section 112(d)(6) other than the startup work practices for anode bake furnaces and paste plants described in the 2011 and 2014 proposals, and the work practices for potlines during normal operations described in the 2014 supplemental proposal. Additional information is available in the Final Technology Review for the Primary Aluminum Production Source Category document, which can be found in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2011-0797).

C. What are the final rule amendments pursuant to Clean Air Act sections 112(d) (2) and (3) for the Primary Aluminum Production source category?

We are promulgating MACT emission limits for COS, PM (as a surrogate for HAP metals other than mercury (Hg)), Hg, and polychlorinated biphenyls (PCB)<sup>2</sup>, all of which were previously unregulated HAP, pursuant to CAA sections 112(d) (2) and (3). In addition, we are promulgating MACT limits for emissions of POM from new and existing prebake potlines and existing pitch storage tanks, which were previously unregulated sources of POM. A summary of the promulgated MACT standards is provided in Table 3, below, and additional information is available in the Final MACT Floor Analysis for the Primary Aluminum Production Source Category document, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797). For more information on the MACT standards that the EPA promulgated and how they are different from those the EPA proposed, see section VI.B of this preamble.

Table 3. Summary of Promulgated MACT Standards

<b>HAP</b>	<b>Source</b>	<b>Promulgated MACT Standard</b>
COS	New potlines	3.1 lb/ton aluminum produced
	Existing potlines	3.9 lb/ton aluminum produced
POM	New potlines	0.77 lb/ton aluminum produced
	Existing potlines	
	CWPB1	1.1 lb/ton aluminum produced
	CWPB2	12 lb/ton aluminum produced

<sup>2</sup> From Soderberg potlines only.

	CWPB3	2.7 lb/ton aluminum produced
	SWPB	17 lb/ton aluminum produced
	Existing pitch storage tanks	Minimum 95-percent reduction of inlet POM emissions
PM	New potlines	4.9 lb/ton aluminum produced
	Existing potlines	
	CWPB1	7.4 lb/ton aluminum produced
	CWPB2	11 lb/ton aluminum produced
	CWPB3	20 lb/ton aluminum produced
	SWPB	4.9 lb/ton aluminum produced
	VSS2	26 lb/ton aluminum produced
	New anode bake furnace	0.07 lb/ton of green anode produced
	Existing anode bake furnace	0.20 lb/ton of green anode produced
	New paste production plant	0.0056 lb/ton of paste produced
	Existing paste production plant	0.082 lb/ton of paste produced
PCB	New and existing Soderberg potlines	2.0 micrograms (µg) toxicity equivalence (TEQ) per ton of aluminum produced
Hg	New and existing anode bake furnaces	1.7 µg per dry standard cubic meter (dscm)

CWPB1 = Center-worked prebake one

CWPB2 = Center-worked prebake two

CWPB3 = Center-worked prebake three

SWPB = Side-worked prebake

VSS2 = Vertical stud Soderberg two

D. What are the final rule amendments addressing emissions during periods of SSM?

We are finalizing, as proposed in the 2014 proposal, changes to the Primary Aluminum Reduction Plants NESHAP to eliminate the exemption in the present rules for emissions occurring during SSM operations. Consistent with Sierra Club v. EPA, 551 F. 3d 1019 (D.C. Cir. 2008), the EPA is establishing standards in this rule that apply at all times. Appendix A to subpart LL of 40 CFR part 63 (General Provisions applicability

table) is being revised to change several references related to requirements that apply during periods of SSM. We are also eliminating or revising certain recordkeeping and reporting requirements related to the eliminated SSM exemption. The EPA also made changes to the rule to remove or modify inappropriate, unnecessary, or redundant language in the absence of the SSM exemption. We are also not adopting the affirmative defense provisions proposed in 2011, consistent with a recent court decision vacating the affirmative defense provisions in one of the EPA's CAA section 112(d) regulations. NRDC v. EPA, 749 F. 3d 1055 (D.C. Cir. 2014).

In addition, we are finalizing work practices for potlines, paste production plants, and anode bake furnaces during startup periods that will ensure improved capture and control of emissions from those sources.

E. What other changes have been made to the Primary Aluminum Reduction Plants NESHAP?

This rule also finalizes revisions to several other Primary Aluminum Reduction Plants NESHAP requirements as proposed, or in some cases with some modification, which are summarized in this section.

1. Electronic Reporting Tool

To increase the ease and efficiency of data submittal and data accessibility, we are finalizing, as proposed, a



requirement that owners and operators of sources subject to the Primary Aluminum Reduction Plants NESHAP submit electronic copies of certain required performance test reports through an electronic performance test report tool called the Electronic Reporting Tool (ERT). This requirement to submit performance test data electronically to the EPA does not require any additional performance testing and applies only to those performance tests conducted using test methods that are supported by the ERT. A listing of the pollutants and test methods supported by the ERT is available at the ERT Web site.

## 2. Work Practice Standards

We are finalizing work practice standards for all potlines (i.e. both prebake and Soderberg) and for anode bake furnaces that will ensure improved capture and control of TF, POM, and PM emissions from those sources. These work practice standards also address Hg emissions from all potlines, PCB emissions from prebake potlines and anode bake furnaces, and dioxins and furan (D/F) emissions from Soderberg potlines (see section IV.C of this preamble for additional discussion of these work practice standards).

## 3. Control Device and Emissions Monitoring

We are finalizing new twice-daily visible emissions (VE) monitoring requirements as an alternative to bag leak detection systems (BLDS) or PM continuous emissions monitoring systems

(CEMS) for control devices installed on existing sources (see section IV.D of this preamble for additional discussion of these monitoring changes).

We are finalizing the inclusion of PM for the potline similarity option found in the current subpart LL at 40 CFR 63.848(d). This section allows an owner or operator to use the monitoring of secondary TF and/or POM emissions from one potline to represent the performance of other "similar" potlines. Potlines are similar "if the owner or operator demonstrates that their structure, operability, type of emissions, volume of emissions and concentration of emissions are substantially equivalent." Based on consideration of comments and information received in responses to the 2014 proposal, the EPA is amending the existing rule to allow potline owners or operators this same option for PM. That is, potline owners and operators now will have the option to establish "similarity of potlines" with respect to PM emissions. "Similarity" would be established based on the criteria already applicable with respect to TF and POM. See subpart LL at 40 CFR 63.848(d). As with TF and POM, an owner or operator would have to make this demonstration to the applicable regulatory authority and obtain approval from that authority.

#### 4. Emission Averaging

We are modifying 40 CFR 63.846 to allow emission averaging in the case of PM from potlines and anode bake furnaces. That section currently allows emission averaging in the cases of POM and TF from these process units with certain prohibitions (e.g., averaging between different pollutants or process units is not allowed). We are only adding PM to these existing provisions, and not reopening the core concept of allowing emission averaging.

#### 5. Alternative Emissions Limits for Co-Controlled New and Existing Anode Bake Furnaces

We are also finalizing the alternative emissions limits for co-controlled new and existing anode bake furnaces as proposed in the 2014 supplemental proposal (79 FR 72949).

#### 6. Minor Technical and Editorial Revisions

We are also finalizing other minor technical and editorial changes to the NESHAP in response to comments received during the public comment period for the proposal and supplemental proposal, as described in this preamble.

#### F. What are the effective and compliance dates of the standards?

The revisions to the MACT standards being promulgated in this action are effective on **[insert the date of publication in the Federal Register]**.

The compliance dates for existing sources are:

**[Insert the date of publication in the Federal Register]**

for the malfunction provisions and the electronic reporting provisions;

October 17, 2016 for potline work practice standards and COS emission limits, for Soderberg potline PM and PCB emission limits, and for anode bake furnace and paste production plant work practices and PM emission limits; and

October 16, 2017 for prebake potline POM and PM emission limits; for Soderberg potline revised POM emission limits and emission limits for Ni and As; for anode bake furnace Hg emission limits; and for pitch storage tank POM equipment standards.

For more information on how we selected compliance dates for existing sources, refer to section IV.E of this preamble and the Final Rationale for Selection of Compliance Dates for the Primary Aluminum Production Source Category document, which can be found in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2011-0797).

New sources must typically comply with all of the standards immediately upon the effective date of the standard, or upon startup, whichever is later. CAA section 112 (i) (1).<sup>3</sup> CAA section 112(a) (4) indicates that a new source is one which commenced

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<sup>3</sup> If a new source standard is more stringent than the standard proposed, a new source may have three years to comply, provided it complies with the proposed standard during that 3-year period. CAA section 112(i) (2).

construction (or reconstruction) after the Administrator first proposes regulations under CAA section 112 for the source category. We have interpreted this date to be the date of the December 2014 proposal given the substantially new record set forth in that proposal. Consequently, for the purposes of compliance with the emission standards for PM, a new affected potline, anode bake furnace, or paste production plant is one for which construction or reconstruction commenced after December 8, 2014, the date on which the EPA first proposed the amendments finalized here. For the purposes of compliance with the emission standards for POM and COS, a new affected potline is one for which construction or reconstruction commenced after December 8, 2014. For the purposes of compliance with the emission standards for Hg or PCB, a new affected anode bake furnace or Soderberg potline is one for which construction or reconstruction commenced after December 8, 2014, although the compliance dates for these standards are October 16, 2017 for anode bake furnaces and October 17, 2016 for Soderberg potlines, since these standards differ from the proposal (see CAA section 112(i)(2)).

G. What are the requirements for submission of performance test data to the EPA?

The EPA is requiring owners and operators of sources subject to the Primary Aluminum Reduction Plants NESHAP

facilities to submit electronic copies of certain required performance test reports [and any other reports, e.g. performance evaluation reports] through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). As stated in the 2011 proposal preamble, the EPA believes that the electronic submittal of the reports addressed in this rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability, will further assist in the protection of public health and the environment and will ultimately result in less burden on the regulated community. Electronic reporting can also eliminate paper-based, manual processes, thereby saving time and resources, simplifying data entry, eliminating redundancies, minimizing data reporting errors and providing data quickly and accurately to the affected facilities, air agencies, the EPA and the public.

As mentioned in the preamble of the 2011 proposal, the EPA Web site that stores the submitted electronic data, WebFIRE, will be easily accessible to everyone and will provide a user-friendly interface that any stakeholder could access. By making the records, data and reports addressed in this rulemaking readily available, the EPA, the regulated community and the public will benefit when the EPA conducts its CAA-required technology and risk-based reviews. As a result of having reports

readily accessible, our ability to carry out comprehensive reviews will be increased and achieved within a shorter period of time.

We anticipate fewer or less substantial information collection requests (ICRs) in conjunction with prospective CAA-required technology and risk-based reviews may be needed. We expect this to result in a decrease in time spent by industry to respond to data collection requests. We also expect the ICRs to contain less extensive stack testing provisions, as we will already have stack test data electronically. Reduced testing requirements would be a cost savings to industry. The EPA should also be able to conduct these required reviews more quickly. While the regulated community may benefit from a reduced burden of ICRs, the general public benefits from the agency's ability to provide these required reviews more quickly, resulting in increased public health and environmental protection.

Air agencies could benefit from more streamlined and automated review of the electronically submitted data. Having reports and associated data in electronic format will facilitate review through the use of software "search" options, as well as the downloading and analyzing of data in spreadsheet format. The ability to access and review air emission report information electronically will assist air agencies to more quickly and accurately determine compliance with the applicable regulations,

potentially allowing a faster response to violations which could minimize harmful air emissions. This benefits both air agencies and the general public.

For a more thorough discussion of electronic reporting required by this rule, see the discussion in the preamble of the 2011 proposal (see 76 FR 76280). In summary, in addition to supporting regulation development, control strategy development, and other air pollution control activities, having an electronic database populated with performance test data will save industry, air agencies, and the EPA significant time, money, and effort while improving the quality of emission inventories, air quality regulations, and enhancing the public's access to this important information.

H. What materials are being incorporated by reference?

In this final rule, the EPA is including regulatory text that includes incorporation by reference (IBR). In accordance with requirements of 1 CFR 51.5, the EPA is incorporating by reference the following documents described in the amendments to 40 CFR 63.14:

- ASTM D4239-14e1, "Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion," approved March 1, 2014;



- ASTM D6376-10, "Standard Test Method for Determination of Trace Metals in Petroleum Coke by Wavelength Dispersive X-Ray Fluorescence Spectroscopy," approved July 1, 2010; and
- Method 428, "Determination Of Polychlorinated Dibenzo-P-Dioxin (PCDD), Polychlorinated Dibenzofuran (PCDF), and Polychlorinated Biphenyle Emissions from Stationary Sources," amended September 12, 1990.

The following material will be referenced in 40 CFR 63.14 and as noted below. This material has already received IBR approval for subpart LL of 40 CFR part 63. We are moving it from an IBR section established earlier within subpart LL to the centralized IBR section in § 63.14.

- Industrial Ventilation: A Manual of Recommended Practice, 22nd Edition, 1995, Chapter 3, "Local Exhaust Hoods" and Chapter 5, "Exhaust System Design Procedure." IBR approved for §§ 63.843(b) and 63.844(b).
- ASTM D2986-95A, "Standard Practice for Evaluation of Air Assay Media by the Monodisperse DOP (Diethyl Phthalate) Smoke Test," approved September 10, 1995, IBR approved for section 7.1.1 of Method 315 in appendix A to 40 CFR part 63.

The EPA has made, and will continue to make, these documents generally available electronically through [www.regulations.gov](http://www.regulations.gov) and/or in hard copy at the appropriate EPA

office (see the **ADDRESSES** section of this preamble for more information).

#### **IV. What is the rationale for our final decisions and amendments for the Primary Aluminum Production source category?**

This section provides a description of what we proposed and what we are finalizing for several issues, the EPA's rationale for the final decisions and amendments, and a summary of key comments and responses. For all comments not discussed in this preamble, comment summaries and the EPA's responses can be found in the National Emission Standards for Hazardous Air Pollutants: Primary Aluminum Reduction Plants Summary of Public Comments and Responses document, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797).

##### A. Residual Risk Review for the Primary Aluminum Production Source Category

1. What did we propose pursuant to CAA section 112(f) for the Primary Aluminum Production source category?

Pursuant to CAA section 112(f), we conducted a residual risk review and presented the results of this review, along with our proposed decisions regarding risk acceptability and ample margin of safety, in the December 2014 supplemental proposal for the Primary Aluminum Reduction Plants NESHAP. The EPA views the residual risk review associated with the 2011 proposal as superseded by the residual risk review associated with the 2014

supplemental proposal, and so is referring only to that later risk assessment. The results of the risk assessment for the 2014 supplemental proposal are summarized in the preamble for that proposal and presented in more detail in the residual risk document, Residual Risk Assessment for the Primary Aluminum Production Source Category in Support of the 2014 Supplemental Proposal, which is available in the docket for this rulemaking. Table 4 below provides the estimated inhalation health risks from the supplemental proposal.

Table 4. Primary Aluminum Production Source Category  
Inhalation Risk Assessment Results from Supplemental Proposal

Maximum Individual Cancer Risk (-in-1 million) <sup>a</sup>	Estimated Population at Increased Risk Levels of Cancer	Estimated Annual Cancer Incidence (cases per year)	Maximum Chronic Non-cancer TOSHI <sup>b</sup>	Refined Maximum Acute Non-cancer HQ <sup>c</sup>
Actual Emissions				
70	≥ 1-in-1 million: 881,000 ≥ 10-in-1 million: 65,000 ≥ 100-in-1 million: 0	0.06	1 Cadmium and Nickel Compounds	HQ <sub>REL</sub> = 10 (Arsenic Compounds)  Residential
Allowable Emissions <sup>d</sup>				
300	≥ 1-in-1 million: 950,000 ≥ 10-in-1 million: 76,000 ≥ 100-in-1 million: 200	0.06	2 Nickel and Arsenic Compounds	

<sup>a</sup> Estimated maximum individual excess lifetime cancer risk due to HAP emissions from the source category.

<sup>b</sup> Maximum TOSHI. The target organ with the highest TOSHI for the Primary Aluminum Production source category for actual emissions is the kidney and respiratory system and for allowable emissions is the respiratory,

immunological, and developmental systems.

<sup>c</sup> The maximum off-site HQ acute value of 10 at a residential location for actuals is driven by emissions of As from the potline roof vents. See section III.A.3 of the December 8, 2014 supplemental proposal for explanation of acute dose-response values. Acute assessments are not performed on allowable emissions.

<sup>d</sup> The development of allowable emission estimates can be found in the memorandum titled Development of the RTR Revised Risk Modeling Dataset for the Primary Aluminum Production Source Category (Docket item number EPA-HQ-OAR-2011-0797-0346).

Based on actual emissions estimates for the Primary Aluminum Production source category supplemental proposal, the maximum individual risk (MIR) for cancer was estimated to be up to 70-in-1 million driven by emissions of As and Ni compounds. The maximum chronic non-cancer target organ-specific hazard index (TOSHI) value was estimated to be up to 1 driven by Ni emissions. The maximum off-site acute hazard quotient (HQ) value was estimated to be 10 for As compounds and 2 for HF. The total estimated national cancer incidence from this source category, based on actual emission levels, was 0.06 excess cancer cases per year, or one case in every 17 years.

Based on MACT-allowable emissions, in the supplemental proposal, the MIR was estimated by the EPA to be up to 300-in-1 million, driven by potential emissions of As, Ni, and POM from the one idle Soderberg facility (Columbia Falls), which is now permanently closed. The maximum chronic non-cancer TOSHI value was estimated to be up to 2, driven by Ni. The MIR due to allowable emissions from prebake facilities was estimated by the EPA to be up to 70-in-1 million, driven by As and Ni.

The EPA also assessed the risks due to multipathway exposures to HAP emissions from the primary aluminum reduction plants. The assessment included tier 1 and tier 2 screening analyses and a refined analysis for the one Soderberg facility which was operational at the time recent emissions data for this source category were collected and this analysis was commenced, but which subsequently announced its permanent shut down in March 2014.

The multipathway screens rely on health-protective assumptions about consumption of local fish and locally grown or raised foods (adult female angler at 99<sup>th</sup> percentile consumption of fish<sup>4</sup> for the subsistence fisherman scenario and 90<sup>th</sup> percentile for consumption of locally grown or raised foods<sup>5</sup> for the farmer scenario) which may not occur for this source category. The tier 2 assessment is less conservative than the tier 1 analysis. However, it is important to note that, even with the inclusion of some site-specific information in the tier 2 analysis, the multipathway screening analysis is still a very conservative health-protective assessment, and, in all likelihood, will yield results that serve as an upper-bound

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<sup>4</sup> Burger, J. 2002. Daily consumption of wild fish and game: Exposures of high end recreationists. International Journal of Environmental Health Research 12:343-354.

<sup>5</sup> U.S. EPA. Exposure Factors Handbook 2011 Edition (Final). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-09/052F, 2011.

multipathway risk associated with any facility in the Primary Aluminum Production source category.

The highest cancer exceedance in the tier 2 analyses for dioxins was 40 times and 7 times for PAH for the subsistence fisherman scenario (total cancer screen value of 50 for the MIR site). Thus, these results indicate that the maximum cancer risks due to multipathway exposures to D/F and PAH emissions for the subsistence fisher scenario are less than 50-in-1 million under these highly conservative screening assumptions.<sup>6</sup> The multipathway analysis for chronic non-cancer effects did not identify any persistent and bioaccumulative hazardous air pollutants (PB-HAP) that exceeded an HQ value of 1. For more information on the risk results, please refer to the residual risk document, Residual Risk Assessment for the Primary Aluminum Production Source Category in Support of the 2014 Supplemental Proposal, which is available in the docket for this rulemaking.

For the supplemental proposal, we weighed all health risk factors in our risk acceptability determination, and we proposed that the risks due to potential HAP emissions at baseline from the Soderberg subcategory were unacceptable due mainly to the estimated cancer risks of 300-in-1 million based on potential

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<sup>6</sup> D/F emissions used in this analysis are likely to be overstated because the EPA imputed values for D/F congeners even from facilities and process units where those D/F congeners were not detected in the emissions tests.

emissions from the one idle Soderberg facility were it to operate.

Regarding the prebake subcategories, as explained in the supplemental proposal, the EPA had concerns regarding the potential acute risks due to As emissions (with a maximum acute HQ of 10). See 79 FR 72947. However, given the conservative nature of the EPA's analysis of acute effects, and the facts that: (a) the inhalation cancer MIR was well below 100-in-1 million (MIR = 70-in-1 million); (b) the chronic non-cancer risks were low (e.g., hazard index (HI) = 1); and (c) given further that the multipathway assessment indicated the maximum cancer risk due to multipathway exposures to HAP emissions from prebake facilities was no higher than 50-in-1 million, we proposed that the risks due to emissions from the prebake subcategories are acceptable. See 79 FR 72947.

2. How did the risk review change for the Primary Aluminum Production source category?

The EPA carefully considered public comments regarding the supplemental proposal (and original proposal), but did not find any comments that resulted in a change in analysis. Thus, the EPA did not change the risk assessment due to actual emissions for the source category and made no changes in the overall results for prebake facilities from the December 2014 supplemental proposal. However, the estimated risks due to

allowable emissions for the source category decreased significantly due to the permanent closure of the one idle Soderberg facility. For the supplemental proposal, we included the one idle Soderberg facility in our assessment of allowable risks because, at that time, the facility still had a permit to operate, had not formally announced plans to close, and, therefore, could have reopened. However, that facility is now permanently closed, and the EPA is no longer including it in the risk assessment. Therefore, the final rule considers only risks from prebake facilities. Nevertheless, as discussed in section III.A. of this preamble, we are promulgating the As, Ni and POM standards proposed in the supplemental proposal to address risk from Soderberg facilities in the very unlikely event that either this idle Soderberg facility is reopened or a new Soderberg facility is constructed. A summary of the risk assessment results for the final rule is provided in Table 5 below. The documentation and details for the final rule risk assessment can be found in the document titled, Residual Risk Assessment for the Primary Aluminum Production Source Category in Support of the September 2015 Risk and Technology Review Final Rule, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797).

Table 5. Primary Aluminum Production Source Category Inhalation Risk Assessment Results for the Final Rule (Prebake)

Maximum	Estimated	Estimated	Maximum	Refined
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Individual Cancer Risk (-in-1 million) <sup>a</sup>	Population at Increased Risk Levels of Cancer	Annual Cancer Incidence (cases per year)	Chronic Non-cancer TOSHI <sup>b</sup>	Maximum Acute Non-cancer HQ <sup>c</sup>
Actual Emissions				
70	$\geq$ 1-in-1 million: 881,000  $\geq$ 10-in-1 million: 65,000	0.06	1 Nickel Compounds	HQ <sub>REL</sub> = 10 (Arsenic Compounds)  Residential
Allowable Emissions <sup>d</sup>				
70	$\geq$ 1-in-1 million: 950,000  $\geq$ 10-in-1 million: 76,000	0.06	1 Nickel Compounds	

<sup>a</sup> Estimated maximum individual excess lifetime cancer risk due to HAP emissions from the source category.

<sup>b</sup> Maximum TOSHI. The target organ with the highest TOSHI for the Primary Aluminum Production source category for actual emissions is the kidney and respiratory system and for allowable emissions is the respiratory, immunological, and developmental systems.

<sup>c</sup> The maximum off-site HQ acute value of 10 at a residential location for actuals is driven by emissions of As from the potline roof vents. See section III.A.3 of the December 8, 2014, supplemental proposal for explanation of acute dose-response values. Acute assessments are not performed on allowable emissions.

<sup>d</sup> The development of allowable emission estimates can be found in the memorandum titled, Development of the RTR Revised Risk Modeling Dataset for the Primary Aluminum Production Source Category (Docket item number EPA-HQ-OAR-2011-0797-0346).

For the final rule, we again weighed all health risk factors in our risk acceptability determination. The EPA had concerns regarding the potential acute risks due to As emissions (with a maximum acute HQ of 10). See 79 FR 72947. However, given the conservative nature of the EPA's analysis of acute effects, and the facts that: (a) the inhalation cancer MIR was well below 100-in-1 million (MIR = 70-in-1 million); (b) the chronic non-cancer risks were low (e.g., HI = 1); and (c) given further that

the multipathway assessment indicated the maximum cancer risk due to multipathway exposures to HAP emissions from prebake facilities was no higher than 50-in-1 million, we have determined that the risks due to emissions from the source category are acceptable. See 79 FR 72947.

We also conducted an ample margin of safety analysis. As we described in the supplemental proposal, for prebake facilities we considered what further reductions might be obtained from technically feasible controls, further considering the cost of such controls and their cost-effectiveness. We identified no cost-effective controls under the ample margin of safety analysis to further reduce risks or environmental effects due to HAP emissions from prebake facilities. 79 FR 72947-48. Therefore, we indicated in the supplemental proposal, and conclude again in this final rule, that the NESHAP for prebake facilities provides an ample margin of safety to protect public health and prevent an adverse environmental effect.

With regard to Soderberg facilities, as mentioned in section III above, we proposed more stringent emission limits for Ni, As, and POM under CAA section 112(f) to ensure that the cancer MIR would remain below 100-in-1 million, the level of risk we defined as acceptable for purposes of this rule. We did not propose more stringent standards under the ample margin of safety analysis since we identified no feasible controls that

would yield risk reductions at reasonable cost. Id at 72948. In this final action, we are promulgating these standards as proposed. Although these standards may not apply to any facilities, we are still promulgating the As, Ni and POM emissions limits for Soderberg facilities under CAA section 112(f) to address the shut down, but not yet demolished, existing Soderberg potlines, and the very unlikely scenario of construction of new Soderberg potlines.

3. What key comments did we receive on the risk review, and what are our responses?

The EPA received several comments regarding the revised risk assessment for the Primary Aluminum Production source category. The following is a summary of some key comments and our responses to those comments. Other comments received and our responses to those comments can be found in the document titled, National Emission Standards for Hazardous Air Pollutants: Primary Aluminum Reduction Plants Summary of Public Comments and Responses, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797).

**Comment:** One commenter stated that the EPA's determination of the emissions reduction required to reduce health risks to an acceptable level violates CAA section 112(f)(2) and is arbitrary. The commenter believed that the EPA's acceptability

determination for prebake facilities is flawed for the following reasons:

- The EPA's acceptability determination is unlawful and arbitrary because its risk assessment is incomplete and fails to follow the up-to-date science to assess health risk;
- The EPA's acceptability determination fails to consider or prevent unacceptable levels of cumulative impacts;
- Socioeconomic disparity in health risk from this source category makes the risk the EPA has found unacceptable, and the EPA must finalize a rule that is consistent with the principle of environmental justice (EJ);
- The EPA has failed to provide a reasoned explanation for why the lifetime cancer risk of 1-in-1 million or more based on inhalation alone from this sector is acceptable;
- After finding a level of acute risk that is 10 times the EPA's safety threshold, the agency has failed to justify not requiring the reduction of acute health risk below 1; and
- The EPA has failed to justify finding chronic non-cancer health risk to be acceptable.

**Response:** We disagree with the commenter that the assessment is incomplete and fails to use up-to-date science.

The dose-response values used in the risk assessment are based on the current peer reviewed Integrated Risk Information System (IRIS) values, as well as other similarly peer-reviewed values. Our approach, which uses conservative tools and assumptions, ensures that our decisions are appropriately health protective and environmentally protective. The approach for selecting appropriate health benchmark values, in general, places greater weight on the EPA derived health benchmarks than those from other agencies (see <http://www.epa.gov/ttn/atw/nata1999/99pdfs/healtheffectsinfo.pdf>). This approach has been endorsed by the Science Advisory Board (SAB).<sup>7</sup> The SAB further recommended that the EPA scrutinize values that emerge as drivers of risk assessment results, and the Agency has incorporated this recommendation into the risk assessment process. This may result in the EPA determining that it is more appropriate to use a peer-reviewed dose-response value from another agency even if an IRIS value exists.

With regard to the comment that the EPA failed to consider cumulative impacts, we note that while the incorporation of additional background concentrations from the environment in our risk assessments (including those from mobile sources and other industrial and area sources) could be technically challenging,

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<sup>7</sup> Refer to the May 2010, SAB response to the EPA Administrator (EPA-SAB-10-007); <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2011-0797-0075>

they are neither mandated nor barred from our analysis. In developing the decision framework in the Benzene NESHAP used for making residual risk decisions, and now codified in CAA section 112 (f) (2) (B), the EPA rejected approaches that would have mandated consideration of background levels of pollution in assessing the acceptability of risk, concluding that comparison of acceptable risk should not be associated with levels in polluted urban air (54 FR 38044, 38061, September 14, 1989). Background levels (including natural background) are not barred from the EPA's ample margin of safety analysis, and the EPA may consider them, as appropriate and as available, along with other factors, such as cost and technical feasibility, in the second step of its CAA section 112(f) analysis. As discussed in the 2014 supplemental proposal, the risk assessment for this source category did not include background contributions (that may reflect emissions that are from outside the source category and from other than co-located sources) because the available data are of insufficient quality upon which to base a meaningful analysis.<sup>8</sup>

This rule has been finalized consistent with agency EJ principles and analyses. To examine the potential for any EJ

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<sup>8</sup> Note that this question is distinct from the issue of consideration of emissions from co-located facilities, which emissions are fully reflected in the EPA's analysis. See discussion in section IV.A.3 of this preamble, below, and 79 FR 72929/1 (emissions estimated for all emitting sources in a contiguous area under common control).

issues that might be associated with the Primary Aluminum Production source category, we performed a demographic analysis, which is an assessment of risks to individual demographic groups, of the population close to the facilities. In this analysis, we evaluated the distribution of HAP-related cancer risks and non-cancer hazards from this source category across different social, demographic, and economic groups within the populations living near facilities identified as having the highest risks. The results of the demographic analysis are summarized in Table 6 below and indicate that there are no significant disproportionate risks to any particular minority, low income, or indigenous population. The methodology and the results of the demographic analyses are included in a technical report, Analysis of Socio-Economic Factors for Populations Living Near Primary Aluminum Facilities, which is available in the docket for this rulemaking (Docket item number EPA-HQ-OAR-2011-0797-0360).

Table 6. Primary Aluminum Production Source  
Category Demographic Risk Analysis Results

	<b>Nationwide</b>	<b>Population with cancer risk at or above 1-in- 1 million</b>	<b>Population with chronic hazard index above 1</b>
Total Population	312,861,265	881,307	0
Race by Percent			
White	72	80	0
All Other Races	28	20	0

Race by Percent			
White	71.9	80.1	0
African American	13	13	0
Native American	1.1	0.9	0
Other and Multiracial	14	6	0
Ethnicity by Percent			
Hispanic	17	5	0
Non-Hispanic	83	95	0
Income by Percent			
Below Poverty Level	14	14	0
Above Poverty Level	86	86	0
Education by Percent			
Over 25 and without High School Diploma	15	14	0
Over 25 and with a High School Diploma	85	86	0

With regard to the comments that the EPA did not justify the determination that risks are acceptable, we generally draw no bright lines of acceptability regarding cancer or non-cancer risks from source category HAP emissions. This is a core feature of the Benzene NESHA approach, now codified in CAA section 112(f)(2)(B). See 54 FR at 38046, 38057; see also 79 FR 72933-34. It is always important to consider the specific uncertainties of the emissions and health effects information regarding the source category or subcategory in question when deciding exactly what level of cancer and non-cancer risk should be considered acceptable. In addition, the source category-specific or subcategory-specific decision of what constitutes an



acceptable level of risk should be a holistic one; that is, it should simultaneously consider all potential health impacts -- chronic and acute, cancer and non-cancer, and multipathway -- along with their uncertainties, when determining the acceptable level of source category risk. Today, such flexibility is even more imperative, because new information relevant to the question of risk acceptability is being developed all the time, and the accuracy and uncertainty of each piece of information must be considered in a weight-of-evidence approach for each decision. This relevant body of information is growing fast (and will likely continue to grow even faster), necessitating a flexible weight-of-evidence approach that acknowledges both complexity and uncertainty in the simplest and most transparent way possible. While this challenge is formidable, it is nonetheless the goal of the EPA's RTR decision-making, and it is the goal of the risk assessment to provide the information to support the decision-making process.

Our acceptability decisions for the prebake subcategory presented in the supplemental proposal, and again in this final rule, are appropriate. The rationale for our acceptability decision for the prebake subcategory was clearly explained in the supplemental proposal and was based on full consideration of the health risk information and associated uncertainties, and we summarize it here:

Regarding the prebake subcategories, as explained in the supplemental proposal, the EPA had concerns regarding the potential acute risks due to As emissions (with a maximum acute HQ of 10). See 79 FR 72947. However, given the conservative nature of the EPA's analysis of acute effects - among them, an assumption of the unlikely confluence of peak emissions, worst-case-meteorology, and an exposed individual present at the precise point this occurs (see 79 FR 72943/1), and the facts that: (a) the inhalation cancer MIR was well below 100-in-1 million (MIR = 70-in-1 million); (b) the chronic non-cancer risks were low (e.g., HI = 1); and (c) given further that the multipathway assessment indicated the maximum cancer risk due to multipathway exposures to HAP emissions from prebake facilities was no higher than 50-in-1 million, we have determined that the risks due to emissions from the prebake subcategories are acceptable.

**Comment:** A commenter stated support for the EPA's risk assessment conclusion that the risk due to actual emissions from the prebake aluminum smelting subcategory is acceptable. The commenter stated that the modeled ambient concentrations that were used in the risk assessment likely overpredict actual concentrations since the Human Exposure Model version 3 (HEM3) uses the American Meteorological Society and EPA Regulatory Model (AERMOD) for air dispersion modeling to

determine ambient concentrations. The commenter stated that the use of AERMOD is inappropriate for modeling stationary line sources like the potroom roof monitors of the facilities and overpredicts ambient concentrations from roof monitor emissions by a factor of about 30 times. The commenter recommended that the EPA use the Buoyant Line and Point source (BLP) dispersion model to correctly model the potline roof monitors.

**Response:** The EPA disagrees that the BLP model needs to be used to correctly model potline roof monitors. An analysis performed by the EPA to compare the modeled estimates from AERMOD and the BLP model for a typical primary aluminum facility indicated that the maximum modeled concentrations from the BLP model were only 20 percent higher than those from AERMOD. Considering the uncertainties in release characteristics and emission rates - both inputs into the models - the results estimated by both HEM3 and BLP are the same within that range of uncertainty.<sup>9</sup> The EPA concluded that this difference was not significant enough to warrant changing the RTR modeling methodology it uses for all source categories, which includes the use of AERMOD and meteorological data generated by the AERMOD Meteorological Preprocessor (AERMET). In addition, the 20

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<sup>9</sup> September 27, 2010, Memo to the EPA from EC/R Incorporated; "Draft Modeling Comparison of BLP and AERMOD for Primary Aluminum" available in the docket at <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2011-0797-0175>.

percent increase in maximum modeled concentrations would translate into an increase in the risk from 70-in-1 million to 80-in-1 million. This level would still be within the range of acceptability and, if the EPA had determined that it was necessary to use the BLP, the Agency would have reaffirmed that risks are acceptable.

**Comment:** One commenter stated that the EPA must strengthen the risk assessment and proposed risk action in order to meet its responsibilities under CAA section 112(f)(2) to provide the requisite "ample margin of safety to protect public health." The EPA also should find risk from the prebake subcategories to be unacceptable, instead of acceptable. The commenter stated that the combined health risks for these sources are substantial and stated that the EPA found that the allowable emissions-based cancer risk from inhalation exposure is 70-in-1 million, plus another 70-in-1 million from multipathway exposure (50-in-1 million for the "fisher" scenario, or fish-based exposure; and 20-in-1 million for the "farmer" scenario, or farm-based exposure). The commenter stated that the 70-in-1 million inhalation risk, combined with the high acute and chronic risks the EPA found, is enough alone to find risk unacceptable.

The commenter stated that in view of the EPA's scientific policy of summing cancer risks, it should recognize that the most-exposed person's combined multipathway and inhalation cancer

risk is 70 + 70 or 140-in-1 million. The commenter stated that this is well above the EPA's presumptive acceptability benchmark (which itself is insufficiently stringent, as explained in their 2012 comments, incorporated by reference). The commenter also stated that the EPA should find the current cancer risk from inhalation and multipathway exposure, due to a combination of As, Ni, PAH, and dioxins, is unacceptable. The commenter stated that if viewed together with the high acute and chronic non-cancer risks the EPA found, as a result of As and Ni in particular, the data the EPA has compiled on risk show that the current health risks are unacceptable.

The commenter stated that the EPA has not assessed the additional multipathway risk from risk-driver pollutants, such as As and Ni. The commenter stated that, as discussed in their 2012 comments (to EPA's original proposal), this is inconsistent with the scientific evidence showing these are persistent bioaccumulative toxics [PBTs], and it is, thus, unlawful and arbitrary and capricious for the EPA not to assess and address the multipathway risks they create.

**Response:** We disagree with the commenter's arguments for finding risks to be unacceptable. The thrust of the comment is that the risk analysis failed to combine risks from various scenarios and pathways, and that, added together, these risks are unacceptable. In fact, the analysis combines risk estimates

to the extent that it is scientifically appropriate to do so. We consider the effect of mixtures of carcinogens consistent with the EPA guidelines and use a TOSHI approach for our chronic non-cancer assessments. We do not use a TOSHI approach for acute analyses, nor do we combine the results of our inhalation and multipathway assessments. (See the Residual Risk Assessment for the Primary Aluminum Production Source Category in Support of the September 2015 Risk and Technology Review Final Rule, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797)).

In the multipathway screening assessment, we did not sum the risk results of the fisher and farmer scenarios. The modeling approach used for this analysis constructs two different exposure scenarios, which serves as a conservative estimate of potential risks to the most-exposed receptor in each scenario. Given that it is highly unlikely that the most-exposed farmer is the same person as the most-exposed fisher, it is not reasonable to add risk results from these two exposure scenarios (see Appendix 5 and Section 2.5 of the Residual Risk Assessment for the Primary Aluminum Production Source Category in Support of the September 2015 Risk and Technology Review Final Rule).

We do not find it reasonable to combine the results of our inhalation and multipathway assessments for this source category. The multipathway risk assessment for prebake

facilities was a screening-level assessment. The screening assessment used highly conservative assumptions designed to ensure that sources with results below the screening threshold values did not have the potential for multipathway impacts of concern. The screening scenario is a hypothetical scenario, and, due to the theoretical construct of the screening model, exceedances of the thresholds are not directly translatable into estimates of risk or HQs for these facilities. Rather, it represents a high-end estimate of what the risk or hazard may be. For example, an exceedance of 2 for a non-carcinogen can be interpreted to mean that we have high confidence that the HQ or HI would be less than 2. Similarly, an exceedance of 30 for a carcinogen means that we have high confidence that the risk is lower than 30-in-1 million. Our confidence comes from the health-protective assumptions that are in the screens: we choose inputs from the upper end of the range of possible values for the influential parameters used in the screens, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total multipathway exposure. It would be inappropriate to sum the risk results from the chronic inhalation assessment and the screening multipathway assessment. In addition to the constraints in the screening-level multipathway assessment described above, it is highly unlikely that the same receptor has the maximum results in both

assessments. In other words, it is unlikely that the person with the highest chronic inhalation cancer risk is also the same person with the highest individual multipathway cancer risk. We agree with the commenter that we "should look at the whole picture of cancer risk," but we do so by assessing cancer and chronic non-cancer inhalation risk, acute risk, multipathway risk, and combining risk results where it is scientifically appropriate to do so, not by arbitrarily and indiscriminately summing risk measures in the absence of a valid technical basis.

We currently do not have screening values for some PB-HAP, but we disagree that the multipathway assessment is inadequate because it did not include "all HAP metals emitted (such as arsenic and nickel)." We developed the current PB-HAP list considering all available information on persistence and bioaccumulation (see <http://www2.epa.gov/fera/air-toxics-risk-assessment-reference-library-volumes-1-3>, specifically Volume 1, Appendix D). (The Air Toxics Risk Assessment Reference Library presents the decision process by which the PB-HAP were selected and provides information on the fundamental principles of risk-based assessment for air toxics and how to apply those principles.) In developing the list, we considered HAP identified as PB-HAP by other EPA program offices (e.g., the Great Waters Program), as well as information from the PBT profiler (see <http://www.pbtprofiler.net/>). Considering this



list was peer-reviewed by the SAB and found to be acceptable,<sup>10</sup> we believe it to be reasonable for use in risk assessments for the RTR program.

Regarding the commenter's assertion that we did not base the multipathway risk assessment on allowable emissions, we believe it is reasonable for the multipathway risk assessment to be based on actual emissions for this source category, and not the allowable level of emissions - i.e. the level that facilities are permitted to emit. The potline fugitive emissions, which drive the risks associated with this source category, vary in magnitude and location along the roofline due to normal operations, including, among others, replacement of anodes. We exacerbate the uncertainty associated with these variations in fugitive emissions when we scale up actual emissions to estimate allowable emissions. Also, there is considerable uncertainty associated with estimated allowable emissions from batch operations, such as pitch storage tank and pitch production, due to the nature of batch operations (e.g., estimating the number of batch operations possible or necessary during a period of time). Further uncertainty results when we consider that, in order to comply with the emission limits at all times, a source's allowable emissions would need to be below

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<sup>10</sup> Refer to the May 2010, SAB response to the EPA Administrator (EPA-SAB-10-007); <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2011-0797-0075>

the associated standard by an indeterminate amount during normal operations. Therefore, we conclude that the uncertainties associated with the multipathway screen along with uncertainties in the allowable emissions estimates would make a multipathway risk assessment based on allowable emissions highly uncertain and, thereby, not appropriate for use in making this regulatory decision.

The commenter also argued for summing acute HQs from different HAP to assess acute non-cancer risk. We do not sum results of the acute non-cancer inhalation assessment to create a combined acute risk number that would represent the total acute risk for all pollutants that act in a similar way on the same organ system or systems (similar to the chronic TOSHI). The worst-case acute screen is already a conservative scenario. That is, the acute screening scenario assumes worst-case meteorology, peak emissions for all emission points occurring concurrently and an individual being located at the site of maximum concentration for an hour. Thus, as noted in the Residual Risk Assessment for the Primary Aluminum Production Source Category in Support of the September 2015 Risk and Technology Review Final Rule, page 31, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797), "because of the conservative nature of the acute inhalation screening and the variable nature of emissions and potential exposures, acute

impacts were screened on an individual pollutant basis, not using the TOSHI approach.” The EPA may conduct a reasoned screening assessment without having to adopt the most conceivably conservative assumption for each and every part of the analysis.

**Comment:** One commenter stated that, as the EPA recognized in the secondary aluminum proposal, at least nine secondary aluminum facilities have co-located primary aluminum operations. The commenter stated that for both source categories, the EPA found that the facility-wide MIR is 70-in-1 million, driven by As, Ni, and hexavalent chromium, and that the TOSHI (chronic non-cancer risk) is 1, driven by cadmium. The commenter stated that the TOSHI number appears to consider only inhalation risk and stated that the TOSHI number must be viewed in context, as the EPA is aware that scientists have directed the EPA to do (and as previously explained and cited to the EPA in comments). The commenter stated that if considered in combination with the high secondary aluminum multipathway risk, and with the high inhalation and multipathway risks for primary aluminum, the facility-wide cancer risk provides additional evidence that risks from both source categories are unacceptable. The commenter asserts this is the case because the most-exposed person’s full amount of risk is the combined amount from the co-located primary and secondary aluminum, not just each source

category separately. The commenter stated that it would be unlawful and arbitrary to consider each type of risk separately, when people near both sources are exposed to both kinds of risk at the same time and, thus, face a higher overall amount of risk.

The commenter stated that the EPA has not offered and can not offer a valid justification for not finding risk from both source categories (including primary aluminum prebake and secondary aluminum) to be unacceptable based on the co-located and combined risks. The commenter stated that the EPA has collected data from both source categories and is evaluating that data in rulemakings for both source categories. The commenter stated that the EPA may not lawfully ignore the full picture of risk that its combined rulemakings show is present for people exposed simultaneously to both source categories at the same facility.

The commenter stated that the EPA only assessed facility-wide risks based on so-called "actual" emissions, so the facility-wide risk number could be at least 1.5 to 3 times higher, based on the EPA's recognition that allowable emissions from primary aluminum facilities are about 1.5 to 1.9 times higher and the fact that allowable emissions from secondary aluminum are at least 3 times higher.

The commenter stated that it is important that the EPA is evaluating facility-wide risk from sources in multiple categories that are co-located.

The commenter stated that the EPA may not reasonably or lawfully then decide not to use the results of that assessment to set stronger standards for these sources. The commenter stated that this rulemaking is an important opportunity for the EPA to recognize the need to act based on data showing significant combined and cumulative risks and impacts at the facility-wide level. The commenter stated that the EPA is also required to do so to meet its CAA section 112(f)(2) duties, as explained in the 2012 comments and reincorporated by reference here.

**Response:** We agree with the commenter that facility-wide risk assessment is appropriately considered in putting the source category risks in context. However, we disagree with the comment that we failed to appropriately consider or account for cumulative risk.

We conducted facility-wide risk assessments for all major sources in the source category that were operating in 2014, including the nine secondary aluminum production facilities co-located with primary aluminum reduction plants. See 79 FR 72929 (emissions estimated for all emitting sources in a contiguous area under common control).

The commenter stated that the EPA must find the risks unacceptable based on the whole-facility risks from co-located primary and secondary aluminum operations. The EPA does not typically include whole-facility assessments in the CAA section 112(f) acceptability determination for a source category. Reasons for this include the fact that emissions and source characterization data are usually not of the same vintage and quality for all source categories that are on the same site, and, thus, the results of the whole-facility assessment are generally not appropriate to include in the regulatory decisions regarding acceptability. However, in this case, we are developing the risk assessments for primary and secondary aluminum production at the same time. The data are generally of the same vintage and we have actual emissions data and source characterization data for both source categories. In response to the comment, we refer to the facility-wide risk assessment, which included the nine facilities with co-located primary and secondary aluminum operations. As discussed above and shown in Table 6, for the facility with the highest risk from inhalation, the facility-wide MIR for cancer from actual emissions is 70-in-1 million. The facility-wide non-cancer hazard is 1. The highest facility-wide exceedance of the multipathway screen is 70. There was no facility-wide exceedance of a noncancer threshold in the multipathway screen. Considering these facility-wide results as

part of the acceptability determination is thus corroborative of our determination that the risks are acceptable for the Secondary Aluminum Production source category.

The commenter is correct that we based our facility-wide risk assessment on actual emissions rather than on estimated allowable emissions. Because the facility-wide allowable emissions estimates have not been subjected to the same level of scrutiny, quality assurance, and technical evaluation as the actual emissions estimates from the source category, and because of the larger inherent uncertainty associated with allowable emissions discussed above, facility-wide risk results based on allowable emissions would be too uncertain to support a regulatory decision, but they could remain important for providing context as long as their uncertainty is taken into consideration.

The distinct issue of whether background emissions not associated with co-located emitting sources at the facility is discussed above. We reiterate that while the incorporation of additional background concentrations from the environment in our risk assessments (including those from mobile sources and other industrial and area sources) could be technically challenging, they are neither mandated nor barred from our analysis. In developing the decision framework in the Benzene NESHAP used for making residual risk decisions, the EPA rejected approaches that

would have mandated consideration of background levels of pollution in assessing the acceptability of risk, concluding that comparison of acceptable risk should not be associated with levels in polluted urban air (54 FR 38044, 38061, September 14, 1989).

Background levels (including natural background) are not barred from the EPA's ample margin of safety analysis, and the EPA may consider them, as appropriate and as available, along with other factors, such as cost and technical feasibility, in the second step of its CAA section 112(f) analysis. As discussed in the 2014 supplemental proposal, the risk assessment for this source category did not include background contributions (that may reflect emissions that are from outside the source category and from other than co-located sources) because the available data are of insufficient quality upon which to base a meaningful analysis.

**Comment:** Some commenters recommended that the EPA should proceed with the required full multipathway risk assessment, as the data showed that the persistent and bioaccumulation screening emission rates were exceeded for POM. The commenters do not believe the risk analysis for this source category is final until this step is complete and disagree with the EPA's explanation that the results are biased high and subject to significant uncertainties, arguing that the EPA cannot ignore



the implications of this screening assessment. The commenter recommended that the EPA perform a full multipathway assessment to find a number it believes fully represents this risk, or use the number it has created as the best available number, without discounting the impact of that number.

One commenter recommended conducting a full multipathway risk assessment for this source category that includes consideration of a child's multipathway exposure in urban and rural residential scenarios. The commenter further stated that the failure of the EPA to assess an exposed child scenario as part of the cumulative risk assessment ignores the exposures that may pose the most significant risk from this source category. The commenter highlighted the risk to children from contaminated soils, noting that past risk assessments have relied on outdated estimates of incidental soil ingestion exposures and stated that the EPA must update these values. The commenter cited two EPA exposures factors handbooks and a journal article as resources to use for assessing risks.

**Response:** We disagree with the comment that our multipathway risk assessment does not consider children. The multipathway screening scenario is intended to represent a high-end exposure for children via incidental soil ingestion. The 2011 Exposure Factors Handbook recommended "upper-percentile" soil ingestion rate (numeric percentile not specified) for

children aged 3 to 6 years is 200 milligrams per day (mg/d). The EPA also published the Child-Specific Exposure Factors Handbook (2008). No additional data or recommendations for child soil ingestion are presented in this source, and, in fact, an "upper percentile" value for this parameter is not provided. Based on these sources, a value of 200 mg/d is used in the current RTR multipathway screening scenario for the child incidental soil ingestion rate.

The multipathway risk assessment conducted for the proposal was a screening-level assessment. The screening assessment used highly conservative assumptions designed to ensure that facilities with results below the screening threshold values did not have the potential for multipathway impacts of concern. The screening scenario is a hypothetical scenario, and, due to the theoretical construct of the screening model, exceedances of the thresholds are not directly translatable into estimates of risk or HQs for these facilities. The scope of the assessment did not change across the tiers in the multipathway screening assessment and is described in the risk assessment documents (and related appendices) available in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2011-0797).

4. What is the rationale for our final approach and final decisions for the risk review?

As discussed above and in the preamble of the 2014 supplemental proposal, after considering health risk information and other factors, including uncertainties, we have determined that the risks from primary aluminum production prebake facilities are acceptable and that the current NESHAP provides an ample margin of safety to protect public health for prebake facilities given that the inhalation cancer MIR was well below 100-in-1 million, the chronic non-cancer risks were low, and the multipathway assessment indicated the maximum cancer risk due to multipathway exposures to HAP emissions from prebake facilities was no higher than 50-in-1 million. In summary, our revised risk assessment indicates that cancer risks due to actual and allowable emissions from prebake facilities are below the presumptive limit of acceptability, and that non-cancer results indicate minimal likelihood of adverse health effects. We evaluated potential risk reductions as well as the cost of control options, but did not identify any control technologies or other measures that would be cost-effective in further reducing risks (or potential risks) for prebake facilities. In particular, we did not identify any cost-effective approaches to further reduce As, Ni, and PAH emissions and risks beyond what is already being achieved by the current NESHAP.

Regarding the Soderberg facilities, as discussed above, since all existing Soderberg facilities are permanently shut

down, we necessarily conclude the risks due to emissions from Soderberg facilities are currently acceptable. However, under our ample margin of safety analysis, we have determined that it is appropriate to promulgate standards for Ni, As, and PAH under CAA section 112(f) for the Soderberg subcategory potlines to ensure that excess cancer risk due to HAP emissions from any possible future primary aluminum reduction plant would remain below 100-in-1 million. We estimate the costs to comply with these standards for Soderberg facilities would be zero since there are no existing operating Soderberg facilities in the U.S. Furthermore, we expect any future new primary aluminum reduction plant would use prebake potlines since prebake potlines are more energy efficient (and lower-emitting) than Soderberg potlines. Therefore, we also estimate that these standards would pose no cost for any future new primary aluminum reduction plant.

B. CAA Sections 112(d)(2) and (3) Revisions for the Primary Aluminum Production Source Category

1. What did we propose pursuant to CAA sections 112(d)(2) and (3) for the Primary Aluminum Production source category?

We proposed several MACT standards in the December 2011 proposal pursuant to CAA sections 112(d)(2) and (3), which are summarized in Table 7, below.

We received significant comments on the 2011 proposal from industry representatives, environmental organizations, and state

regulatory agencies. After reviewing the comments, and after consideration of additional data and information received since the 2011 proposal, the EPA determined it was appropriate to gather additional data, revise some of the analyses associated with that proposal, and to publish a supplemental proposal.

In support of the supplemental proposal, the EPA sent an information request to owners of currently operating primary aluminum reduction plants in March of 2013. The EPA received associated responses in May through August 2013. As part of this data collection effort, we received emissions data for PM, HAP metals (including antimony, As, beryllium, cobalt, manganese, selenium, Ni, cadmium, chromium, lead, and Hg), PCB, and D/F from potlines, anode bake furnaces, and/or paste production plants from every primary aluminum reduction plant that was operational at that time, including nine prebake-type facilities and one Soderberg-type facility.

Based on evaluation of all the data, we proposed several revised and new MACT standards in the December 2014 proposal pursuant to CAA sections 112(d)(2) and (3), which are summarized in Table 7, below.

Table 7. Summary of Proposed MACT Standards

<b>Proposal</b>	<b>HAP</b>	<b>Source</b>	<b>Promulgated MACT Standard</b>
2011 proposal (76 FR 76259)	COS	New potlines	3.1 lb/ton aluminum produced
		Existing potlines	3.9 lb/ton aluminum produced

	POM	New potlines	0.62 lb/ton aluminum produced
		Existing potlines	
		CWPB1	0.62 lb/ton aluminum produced
		CWPB2	1.3 lb/ton aluminum produced
		CWPB3	1.26 lb/ton aluminum produced
		SWPB	0.65 lb/ton aluminum produced
		VSS2	3.8 lb/ton aluminum produced
		HSS	3.0 lb/ton aluminum produced
		Existing pitch storage tanks	Minimum 95-percent reduction of inlet POM emissions
2014 proposal (79 FR 72914)	POM	New potlines	0.77 lb/ton aluminum produced
		Existing potlines	
		CWPB1	1.1 lb/ton aluminum produced
		CWPB2	12 lb/ton aluminum produced
		CWPB3	2.7 lb/ton aluminum produced
		SWPB	19 lb/ton aluminum produced
	PM	New potlines	4.6 lb/ton aluminum produced
		Existing potlines	
		CWPB1	7.2 lb/ton aluminum produced
		CWPB2	11 lb/ton aluminum produced
		CWPB3	20 lb/ton aluminum produced
		SWPB	4.6 lb/ton aluminum produced
		VSS2	26 lb/ton aluminum produced
		New anode bake furnace	0.036 lb/ton of green anode produced
		Existing anode bake furnace	0.068 lb/ton of green anode produced

		New paste production plant	0.0056 lb/ton of paste produced
		Existing paste production plant	0.082 lb/ton of paste produced

HSS = horizontal stud Soderberg

2. How did the proposed CAA sections 112(d)(2) and (3) standards change for the Primary Aluminum Production source category?

Commenters provided additional emissions data for POM from SWPB potlines and for PM from CWPB1 potlines and anode bake furnaces, and identified areas where we had misinterpreted data used for the proposed PM and POM standards.

Based on these comments and additional PM and POM emissions data, we re-evaluated the proposed PM and POM MACT standards and revised the following MACT limits:

- POM emission limit of 19 lb/ton aluminum for existing SWPB potlines changed to 17 lb/ton aluminum;
- PM emission limit of 7.2 lb/ton aluminum for existing CWPB1 potlines changed to 7.4 lb/ton aluminum;
- PM emission limit of 4.6 lb/ton aluminum for existing SWPB potlines changed to 4.9 lb/ton aluminum;
- PM emission limit of 4.6 lb/ton aluminum for new potlines changed to 4.9 lb/ton aluminum;
- PM emission limit of 0.068 lb/ton green anode for existing anode bake furnaces changed to 0.2 lb/ton green anode; and

- PM emission limit of 0.036 lb/ton green anode for new anode bake furnaces changed to 0.07 lb/ton green anode.

The EPA discussed at proposal whether to promulgate MACT standards at this time for HAP where much, most, or virtually all of the data showed levels below detection limits. See 79 FR 72936. We received comments claiming that, in addition to the standards listed above, the EPA must promulgate standards for these HAP: Hg, D/F, and PCB. Based on these comments, and considering further reply comments from industry addressing this issue (see email, dated July 1, 2015, from Mr. Curt Wells of The Aluminum Association, which is available in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2011-0797)), we re-evaluated the data we had for PCB, D/F, and Hg to determine whether it would be appropriate to establish emissions limits for these HAP. Based on that evaluation, we determined that the emissions data for PCB from VSS2 Soderberg potlines are above detection limits and that numerical limits reflecting MACT can be set for these sources. Therefore, we are finalizing a MACT limit for PCB of 2.0 µg TEQ/ton for existing Soderberg VSS2 potlines and new Soderberg potlines. These standards were developed based on the 99-percent upper prediction limit (UPL) for PCB emissions from the available emissions data and represent the MACT floor level of control. We also considered



beyond-the-floor options, but did not identify any feasible or cost-effective beyond-the-floor options.

Furthermore, we determined that the emissions data for Hg from anode bake furnaces are above detection limits and that MACT limits can be set for these sources. Therefore, we are finalizing a MACT limit for Hg of 1.7  $\mu\text{g}/\text{dscm}$  for new and existing anode bake furnaces. These standards are equal to 3 times the representative detection limit (RDL) value for Hg. The RDL is the average method detection level (MDL) achieved in practice by laboratories whose data support the best performing 12 percent of a MACT category (or categories). We use an average value for the RDL because a decision for a new source floor may be based upon a test report where the laboratory chosen has better equipment and/or practices than other laboratories and, therefore, reported a lower MDL. Using that data to set the floor would result in requiring all new sources to choose that laboratory in order to demonstrate compliance with the new limit. We recognize the need to allow sources to conduct business with their local laboratories, or a laboratory of their preference; however, we limit the RDL to the best laboratory performers because we do not want to incentivize the use of the worst performing laboratories. The EPA policy is to set MACT standards for a pollutant at a level of 3 times the RDL level for that pollutant when the 99-percent UPL value for the

available emissions data results in a value that is less than 3 times the RDL level for that pollutant, which is the case for Hg emissions from anode bake furnaces. See, e.g., docket item number EPA-HQ-OAR-2009-0559-0157.

We use the multiplication factor of 3 to approximately reduce the imprecision of the analytical method until the imprecision in the field sampling reflects the relative method precision as estimated by the American Society of Mechanical Engineers (ASME) study<sup>11</sup> that also indicates that such relative imprecision, from 10 to 20 percent, remains constant over the range of the methods. For comparing to the floor, if 3 times the RDL were less than the calculated floor or emissions limit (e.g., calculated from the UPL), we would conclude that measurement variability was adequately addressed. The calculated floor or emissions limit would need no adjustment. If, on the other hand, the value equal to 3 times the RDL were greater than the UPL, we would conclude that the calculated floor or emissions limit does not account entirely for measurement variability. Therefore, we substituted the value equal to 3 times the RDL for the calculated floor or emissions limit which results in a concentration where the method would produce

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<sup>11</sup> Reference Method Accuracy and Precision (ReMAP): PHASE 1, Precision of Manual Stack Emission Measurements; American Society of Mechanical Engineers, Research Committee on Industrial and Municipal Waste, February 2001.

measurement accuracy on the order of 10 to 20 percent similar to other EPA test methods and the results found in the ASME study.

Please refer to the Final MACT Floor Analysis for the Primary Aluminum Production Source Category, which is available in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2011-0797), for more information regarding the new standards.

Regarding the Hg and PCB emissions from the other process units (such as potlines and paste production plants), and D/F from all the process units, most (or all) of the emissions tests were below the detection limit. Therefore, we conclude it is not feasible to prescribe or enforce a numerical emission standard for these HAP emissions, within the meaning of CAA section 112(h)(1) and (2). Specifically, measured values for these HAP would be neither duplicable nor replicable and would not give reliable indication of what (if anything) the source was emitting. Under CAA section 112(h)(2), the EPA may adopt work practice standards when "the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations." As discussed more fully in section IV.C below, the EPA does not regard measurements which are unreliable, non-duplicable, and non-replicable to be practicable. Simply put, the CAA simply does not compel promulgation of numerical emission standards that are too unreliable to be meaningful. Therefore, as discussed in

section IV.C of this preamble, we are promulgating work practice standards for these HAP under section 112(h) of the CAA for various process units.

3. What key comments did we receive on the CAA sections 112(d) (2) and (3) proposed revisions, and what are our responses?

**Comment:** Commenters identified POM and PM emissions data from prebake potlines and PM emissions data from anode bake furnaces that were incorrectly represented in the data sets used for MACT limit determinations. Commenters also provided additional PM data for prebake potlines and anode bake furnaces. Commenters requested the EPA to re-evaluate MACT floors and recalculate MACT limits for PM and POM based on the corrected and additional data.

**Response:** We agree with commenters that the EPA misinterpreted certain data in the supplemental proposal. For example, we misinterpreted the PM and POM emissions from a single exhaust stack of a control device with multiple exhaust stacks to be the total PM and POM emissions from that source and misinterpreted the primary POM emissions from a potline to be total POM emissions from that potline (see pages 5 through 8 of the public comments provided by The Aluminum Association, which are available in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2011-0797)). The final rule reflects appropriate data

corrections, and the additional data provided have been incorporated in the final limits promulgated for POM and PM from prebake potlines and PM from anode bake furnaces. Further information regarding the development of the final emission limits can be found in the document titled, Final MACT Floor Analysis for the Primary Aluminum Production Source Category, which is available in the docket for this action.

**Comment:** One commenter stated that the EPA must set standards for all HAP emitted by primary aluminum reduction plants. The commenter explained that the EPA's data collection found that primary aluminum reduction plants emit D/F, Hg, and PCB. Nevertheless, the EPA proposed not to set standards to limit these pollutants at all because "many of the emissions tests were below detection limit" even though there are emissions data in the record above the detection limits for these pollutants for some sources. The commenter continued their argument by stating that the CAA and D.C. Circuit case law require the EPA to set limits for all emitted pollutants. As the D.C. Circuit has held, the EPA has a "clear statutory obligation to set emissions standards for each listed HAP [i.e., hazardous air pollutant]" under CAA section 112.

**Response:** As explained above, based on consideration of this comment, industry comment, and re-evaluation of the data, we are promulgating numerical emissions limits for Hg from anode

bake furnaces and PCB for Soderberg potlines because the data we have support the development of such numerical limits.

Furthermore, regarding Hg, D/F, and PCB from the other process units, as described in section IV.C of this preamble, we are promulgating work practice standards under CAA section 112(h) because most of the emissions data were below the detection limit for these HAP and process units.

4. What is the rationale for our final approach for the CAA sections 112(d) (2) and (3) revisions?

All numerical MACT standards proposed and promulgated for the Primary Aluminum Production source category reflect the MACT floor and were developed based on the 99-percent UPL of the available emissions data for this source category,<sup>12</sup> except for the limits set for Hg emissions from anode bake furnaces which were set equal to a value of 3 times the RDL due to data limitations, as explained above. We considered beyond-the-floor options. However, we determined that no cost-effective beyond-the-floor options were available. For more information regarding the development of the MACT standards for this source category

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<sup>12</sup> For determining performance over time, the EPA used the UPL statistical methodology. That is, the best performers, and their level of performance, are determined after accounting for sources' normal operating variability. The UPL represents the value which one can expect the mean of a specified number of future observations (e.g., 3-run average) to fall below for the specified level of confidence, based upon the results of an independent sample from the same population. See MACT Floor Memo and Memorandum, Use of the Upper prediction limit for Calculating MACT Floors (Docket ID No. EPA-HQ-OAR-2011-0797).

and our analyses of beyond-the-floor options, see the document, Final MACT Floor Analysis for the Primary Aluminum Production Source Category, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797).

C. Revisions to the Work Practice Standards for the Primary Aluminum Production Source Category

1. What work practice standards did we propose pursuant to CAA sections 112(h) and/or 112(d)(6) for the Primary Aluminum Production source category?

In 2011, we proposed work practice standards for TF and POM emissions from potlines during startup periods under 112(h) of the CAA because we determined that it is economically and technically infeasible to measure emissions of these HAP during these startup periods. Subsequently, in 2014 we proposed to expand these standards to also apply to PM.

In 2014, we also realized that these work practices could also help minimize emissions during periods of normal operation. Therefore, as mentioned above, under the technology review pursuant to CAA section 112(d)(6), in 2014 we proposed that these work practice standards for potlines would also apply during normal operations to ensure improved capture and control of TF, POM, and PM emissions from those sources. For potlines, the work practices included: (1) ensuring the potline scrubbers and exhaust fans are operational at all times; (2) ensuring that

the primary capture and control system is operating at all times; (3) keeping pots covered as much as practicable to include, but not limited to, minimizing the removal of covers or panels of the pots on which work is being performed; and (4) inspecting potlines daily.

Regarding other emissions sources, in 2011 we also proposed work practices for anode bake furnaces during startup periods under CAA section 112(d)(6) that will ensure improved capture and control of HAP emissions from those sources during startup periods. Then, in the 2014 supplemental proposal, we proposed work practices for paste production plants during startup periods under CAA section 112(d)(6) that will ensure improved capture and control of HAP emissions from those sources during startup periods.

For anode bake furnaces and paste production plants, the proposed work practices included ensuring that the associated emission control system is operating within normal parametric limits prior to startup of the emission source and requiring that the anode bake furnace or paste production plants be shut down if the associated emission control system is off line during startup.

2. What changes were made to the work practice standards developed for the Primary Aluminum Production source category pursuant to CAA sections 112(h) and/or 112(d)(6)?



In the final rule, the work practices for potlines, anode bake furnaces, and paste production plants remain unchanged from the proposals. In the final rule, we added additional, more specific VE monitoring requirements, which are applicable during all periods of operation, for emission points that are not equipped with BLDS or PM CEMS, and thus, ensuring improved capture and control of emissions at all times. Furthermore, the work practice standards for anode bake furnaces address PCB emissions (under CAA section 112(h)) for these process units, and the work practice standards for potlines address Hg from all potlines, PCB emissions from prebake potlines, and D/F emissions from Soderberg potlines (under CAA section 112(h)) because in all these cases we determined that it is economically and technically infeasible to reliably measure emissions of these HAP from these process units.

3. What key comments did we receive regarding work practice standards and what are our responses?

**Comment:** As mentioned above, one commenter stated that the EPA's data collection found that primary aluminum reduction plants emit D/F, Hg, and PCB. The commenter stated that the EPA states that it is not proposing standards for these currently unregulated pollutants because "many of the emissions tests were below detection limit." The commenter stated that the EPA has some emission data in the record above the detection limits for

these pollutants for some sources. The commenter stated that the CAA and D.C. Circuit case law require the EPA to set limits for all emitted pollutants.

The commenter stated that as the D.C. Circuit has held, the EPA has a "clear statutory obligation to set emissions standards for each listed HAP [i.e., hazardous air pollutant]" under CAA sections 112(d)(1)-(3). The commenter stated that these pollutants are some of the most potent and most harmful, even at extremely low levels of human exposure.

The commenter stated that it would be internally inconsistent not to regulate these HAP, because in this rulemaking, the EPA has recognized the need to set emission standards for unregulated pollutants. The commenter stated that the EPA states that it may, but is not required to set emission standards for these pollutants, citing the Portland Cement decision (665 F. 3d at 189). The commenter stated that the Portland Cement decision did not hold that the EPA may avoid setting limits for CAA section 112-listed pollutants emitted by a source category. The commenter stated that the Portland Cement decision affirmed that the EPA may set revised emission standards, including updated MACT floors, whenever it determines this is necessary, including as a result of a CAA section 112(d)(6) review, or more often.

The commenter stated that the revised standards the EPA is proposing here must satisfy CAA sections 112(d)(2)-(3). The commenter stated that the EPA may not "cherry-pick" the HAP when initially setting and revising standards. The commenter stated that if the EPA missed HAP that it is legally required to regulate in prior standards, then it has an ongoing obligation to set such standards, and it would be both unlawful and arbitrary and capricious for the EPA not to set such standards as part of this review and revision rulemaking under CAA section 112(d).

The commenter stated that the EPA has recognized the need to assess health risks from these pollutants and has created a method to do so by assuming that the undetected emissions were equal to one-half the detection limit, which the EPA explains is "the established approach for dealing with non-detects in the EPA's RTR program when developing emissions estimates for input to the risk assessments." The commenter stated that the EPA may not ignore these pollutants under CAA section 112(d) when it acknowledges and has found a way to address them under CAA section 112(f) - even though some of the data in the record are below the detection level.

The commenter stated that instead of ignoring the emissions data it has, the EPA must at least use the emission data that are above the detection level to set standards. Furthermore, the

commenter stated that for the non-detect values, the EPA may not lawfully ignore these data. The commenter stated that the EPA must recognize that some sources have achieved levels of emissions below the detection level and use an appropriate number at or below the detection level as part of its floor analysis, to satisfy the floor and beyond-the-floor requirements of CAA sections 112(d)(2)-(3).

**Response:** As mentioned in section IV.B above, based on consideration of this comment, industry comment, and re-evaluation of the data, we are promulgating numerical emissions limits for Hg from anode bake furnaces and PCB from Soderberg potlines because the data we have support the development of such numerical limits. Furthermore, regarding Hg from potlines, PCB from prebake potlines and anode bake furnaces, and D/F from Soderberg potlines, as described in section IV.C of this preamble, we are promulgating work practice standards under CAA section 112(h) because most of the emissions data were below the detection limits for these HAP and process units. However, EPA is not adopting either numerical standards or work practice standards for these HAP from other process units because all of the associated emissions data were below the detection limit or otherwise unreliable (e.g., the test report indicated quality assurance problems). There is certainly no obligation under CAA

sections 112(d)(2) and (3) for the EPA to promulgate standards for HAP that are not emitted by a source category.

Given these determinations, the commenter's claims that the EPA is obligated to establish MACT standards for HAP at particular times, and that it must do so if it is making assumptions about emission levels as part of the CAA section 112(f) risk analysis, are no longer presented.<sup>13</sup>

4. What is the rationale for our final approach regarding work practice standards under CAA sections 112(h) and/or 112(d)(6)?

Based on comments received during the 2014 supplemental proposal public comment period, we determined that it was appropriate to re-evaluate the data we had for PCB, D/F, and Hg. For D/F from potlines, anode bake furnaces, and paste production plants; Hg from potlines and paste production plants; and PCB from prebake potlines, anode bake furnaces, and paste production plants, we found that more than half of the test data were below the detection limit. We maintain our December 2014 proposed position that it is not appropriate to promulgate numerical MACT limits for these HAP from these process units. Instead, as explained below, we are promulgating work practice standards under CAA section 112(h), when appropriate.

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<sup>13</sup> We disagree with the commenter that standards are compelled at this time, given the EPA's discretion regarding timing of revising MACT standards. See 79 FR 72936 at n. 35. The EPA is exercising its discretion in adopting these standards in the final rule.

Sections 112(h) (1) and (h) (2) (B) of the CAA indicate that the EPA may adopt a work practice standard rather than a numeric standard when "the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations." As explained above, the majority of the data collected for Hg, D/F, and PCB during the information request test program for these emissions points were below the detection limit. Under these circumstances, the EPA does not believe that it is technologically and economically practicable to reliably measure Hg, D/F, and PCB emissions from these particular sources. The "application of measurement methodologies" (described in CAA section 112(h) (2) (B)) means more than taking a measurement. It must also mean that a measurement has some reasonable relation to what the source is emitting, i.e., that the measurement yields a meaningful value. That is not the case here, and the EPA, therefore, does not believe it reasonable to establish a numerical standard for Hg, D/F, and PCB from these particular process units in this rule. Moreover, a numerical limit established at some level greater than the detection limit (which would be a necessity since any numeric standard would have to be measurable) could actually authorize and allow more emissions of these HAP than would otherwise be the case. The work practices for anode bake furnaces, paste production plants, and potlines discussed in

section IV.C.1 of this preamble are those practices utilized by the best performing sources - the sources with the work practices in place that the EPA has evaluated as best controlling emissions of these HAP.

In the cases of PCB from anode bake furnaces and prebake potlines, D/F from Soderberg potlines, and Hg from both Soderberg and prebake potlines, we determined that about 70 to 80 percent of the emissions data were below the detection limits. In previous cases (see, e.g., 76 FR 25046, 78 FR 22387, and docket item number EPA-HQ-OAR-2013-0291-0120) where test results were predominantly (e.g., more than 55 percent of the test run results) found to be below detection limits, the EPA established work practice standards for the pollutants in question from the subject sources, since we believe emissions of the pollutants are too low to reliably measure and quantify. We are adopting that same approach here, for the same reasons, and are, therefore, finalizing work practice standards to address emissions of Hg from potlines, PCB from anode bake furnaces and prebake potlines, and D/F from Soderberg potlines. Specifically, we are finalizing the work practice standards presented in 40 CFR 63.847(l) and (m) and 40 CFR 63.854 of the 2014 supplemental proposal to address emissions of Hg from potlines, D/F from Soderberg potlines, and PCB from prebake potlines. Further, the requirements of 40 CFR 63.847(h)(1) and 40 CFR 63.848(f)(1) of

current subpart LL; the work practice standards proposed in sections 40 CFR 63.843(f) and 40 CFR 63.844(f) of the 2011 proposal and 40 CFR 63.847(l) of the 2014 proposal; and the enhanced VE monitoring of 40 CFR 63.848(g)(3) of the final rule address the PCB emissions from anode bake furnaces.

However, as noted above, all of the emissions data for D/F from prebake potlines, anode bake furnaces, and paste production plants were either below the detection limit or otherwise unreliable (e.g., were flagged in the test report as having quality assurance issues). Therefore, we are not promulgating numerical emissions limits or work practices for these HAP since there is no reliable evidence that these sources emit them.

D. What changes did we make to the control device monitoring requirements for the Primary Aluminum Production source category?

1. What control device monitoring requirements did we propose for the Primary Aluminum Production source category?

In the 2014 supplemental proposal, we proposed that the owner or operator of a primary aluminum reduction plant would need to install either a BLDS or a PM CEMS on the exhaust of each control device used to control emissions from a new or existing affected potline, anode bake furnace, or paste production plant.



2. What changes did the EPA make to the proposed control device monitoring requirements developed for the Primary Aluminum Production source category?

In the final rule, the control device monitoring requirements for new potlines, new anode bake furnaces, and new paste production plants remain unchanged. However, for existing potlines, existing anode bake furnaces and existing paste production plants, the owner or operators have the option to conduct enhanced VE monitoring as an alternative to the installation of BLDS or PM CEMS. This enhanced VE monitoring would include twice daily monitoring of VE from the exhaust of each control device, with those two VE monitoring events at least 4 hours apart. If VE are observed, then the owner or operator would need to take corrective action within 1 hour, including isolating, shutting down, and conducting internal inspections of any baghouse compartment associated with VE indicating abnormal operations and fixing the compartment before it is put back in service.

3. What key comments did we receive regarding control device monitoring requirements and what are our responses?

**Comment:** Several commenters stated that the proposed rule requires either the installation of PM CEMS or the installation of BLDS on stack emission points associated with fabric filter (baghouse) control systems for demonstration of continuous

compliance with the PM limit. The commenters stated that the EPA has not considered the large number of stacks involved and the complexity, time, and cost for installing BLDS or PM CEMS monitoring systems on the baghouses of potline primary control systems.

The commenters stated that there are significant and substantial issues with this requirement that merit rethinking. The commenters stated that there is already a requirement in the 40 CFR part 63, subpart LL rule for a daily visual check for opacity on all stacks associated with baghouse control systems. The commenters stated that this serves the same function and purpose as the installation of BLDSs and has been working well in that manner since the time the original rules were finalized in 1997.

The commenters stated that the EPA concluded "...that all existing prebake potlines will be able to meet these MACT floor limits for PM without the need to install additional controls because the performance of all sources in the category is similar, all of the potlines within each of the subcategories utilize very similar emission control technology, the average emissions from each source are well below the MACT floor limit and emissions data from every facility that performed emissions testing were included in the dataset used to develop the MACT floor." The commenters stated that it is clear that the daily VE

inspection, corrective action, and baghouse maintenance practices that facilities have already implemented in response to the enhanced monitoring requirements of current 40 CFR part 63, subpart LL are resulting in a level of baghouse performance that ensures ongoing continuous compliance with the proposed PM emission limits.

The commenters stated that the EPA notes in the proposed rule that potline secondary PM emissions comprise by far the largest share of primary aluminum reduction plant PM emissions, and these would not be addressed with BLDS. The commenters cited test data to highlight this issue and stated that the EPA's own analysis of control options on secondary PM emissions from potlines found them to not be economically feasible yet the resulting risks are still within acceptable risk limits.

The commenters stated that the most common potline primary PM control system, the A-398 scrubber system, has multiple stacks associated with each control device, and there are multiple control devices for each potline. The commenters stated that a survey of U.S. primary aluminum facilities indicated that at present there are 388 potline stack emission points across seven operating plants that would need to install BLDS in response to this proposed new requirement. The commenters stated that there are 50 to 100 individual stacks per potline at some of their facilities and provided a table of the affected

sources. The commenters stated that the costs, complexity, and time required for installing BLDS or PM CEMS at a facility with over 100 potline control device stacks are formidable.

The commenters provided a cost analysis of installation and operating cost for BLDS and estimated that industry-wide, this would result in cumulative \$5.24 million of initial costs and \$1.2 million of annual costs to comply with this requirement for potlines, not including the additional costs relative to compliance for anode bake furnaces and paste production plants. The commenters stated that none of these very significant costs are included in either the December 2014 supplemental proposal preamble discussion of the costs/benefit calculation or the Revised Draft Cost Impacts for the Primary Aluminum Source Category document dated November 13, 2014. The commenters stated that inclusion of these bag leak detector costs alters the cost/benefit dynamic substantially such that it changes the calculation from a slight net benefit to a significant net cost. The commenters stated that the bag leak detector option is the most cost-effective of the two compliance options presented in the proposed rule (BLDS versus PM CEMS). The commenters urged the EPA to recalculate the revised cost estimate to address the installation of BLDS or PM CEMS on existing sources and to provide for the opportunity to comment on the changes.

The commenters stated that the proposed requirements of 40 CFR 63.848(o)(3)(i) require initiation of procedures to determine the cause of a BLDS alarm within 30 minutes. The commenters stated that the subpart LL requirements of 40 CFR 63.848(h) all require the initiation of corrective action within 1 hour. The commenters stated that the EPA should set the time frame for initiating a response to BLD events at 1 hour so as to be consistent with the other corrective action requirements.

The commenters stated that the proposed timelines for compliance do not consider the time required to design, procure, and install and operate a BLDS or PM CEMS on each baghouse stack. The commenters stated that since the proposed requirement to install BLDS or PM CEMS on potline control devices is unnecessary and cost-prohibitive for existing potlines, they strongly recommend that BLDS and PM CEMS provisions be deleted from the final rule requirements in their entirety.

The commenters stated that the EPA's proposed requirements of 40 CFR 63.848(o)(1) pertain to baghouse preventative maintenance requirements. The commenters stated that facilities already have to comply with similar requirements for proper operation and maintenance of emission control equipment under state or federal requirements as included in their title V air operating permits. The commenters stated that the EPA should tailor the proposed requirements to specifically address the

development and implementation of procedures pertaining to the BLDS.

The commenters recommended (in the event that BLDS is in the final rule) revisions to 40 CFR 63.848(o)(1) and (3)(i).

**Response:** The EPA agrees that installation of BLDS or PM CEMS for certain existing emission control configurations would be both technically challenging and cost prohibitive for some facilities due to the large number of individual stacks supporting these control devices. We also agree with the commenters that PM emissions from potlines are dominated by secondary roof vent emissions. This is a result of effective emissions control on the primary stacks and the difficulty (technical and economic) associated with installation and operation of secondary roof vent emission controls. Moreover, we further find that under these circumstances, enhanced VE monitoring provides sufficiently reliable and timely information for determining compliance with the PM standards - in particular, the twice daily VE monitoring with requirement for initiation of corrective actions (if applicable), including isolation and internal inspection of a scrubber compartment, within 1 hour.<sup>14</sup> Therefore, we are providing owners or operators

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<sup>14</sup> See *Sierra Club v. EPA*, 353 F. 3d 976, 991 (D.C. Cir. 2004) (per Roberts, J.) (enhanced monitoring requirement in CAA section 114(a)(3) does not mandate continuous monitoring or create a presumption for such monitoring. Consistent with that reading, CAA section 504 (b) provides that "continuous

of existing affected sources the options to monitor these sources with either BLDS, PM CEMS, or enhanced VE observations, as described above. Further, for those sources that do have BLDS, we agree that 1 hour is the appropriate length of time for initiation of root cause analysis for alarms and, therefore, are promulgating this requirement.

4. What is the rationale for our final approach regarding control device monitoring requirements?

The final rule will require annual PM testing of the primary control device and continuous or frequent monitoring with BLDS, PM CEMS, or VE observations. The EPA believes it is necessary that facilities conduct at least one of these monitoring measures to ensure that the primary control device is maintained in good working order throughout the year. As mentioned above, as an alternative to BLDS or PM CEMS, we are finalizing a third option of twice daily visual inspections of each exhaust stack(s) of each control device using Method 22 (at least 4 hours apart) for existing sources. Existing sources will have the option to perform Method 22 inspections, install BLDS, or install PM CEMS. We believe that the twice daily visual

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emissions monitoring need not be required if alternative methods are available that provide sufficiently reliable and timely information for determining compliance").

inspection alternative will provide adequate assurance that the control devices are properly operated and maintained.

We believe that future potline air pollution control systems will be constructed/installed with a newer technology (dry injection type), rather than the currently installed (older) technology A-398 type. The newer technologies have significantly fewer stack emission points than the many stacks of the A-398 systems. Consequently, the number of BLDS needed would be substantially less with those systems than for the A-398 systems. For this reason, we are maintaining the requirement to install BLDS or PM CEMS on new sources.

E. What changes did we make to compliance dates for the Primary Aluminum Production source category?

1. What existing source compliance dates did we propose for the Primary Aluminum Production source category?

The proposed compliance dates for existing sources in the December 2014 supplemental proposal were as follows:

- Date of publication of final rule for the malfunction provisions and the electronic reporting provisions;
- One year after date of publication of final rule for potlines subject to the COS and PM emission limits; prebake potlines subject to POM emission limits; the potline, paste production plant, and anode bake furnace work practices; anode bake furnaces and paste



production plants subject to PM emission limits; and  
pitch storage tanks subject to POM standards; and

- Two years after date of publication of final rule for Soderberg potlines subject to the POM, Ni, and As emission limits.

2. What changes is EPA making to the proposed existing source compliance dates for the Primary Aluminum Production source category?

The EPA has revised the compliance dates for existing sources in the Primary Aluminum Production source category from those proposed in 2014 as follows:

- The compliance date was changed from 1 year after date of publication of final rule to 2 years after date of publication of final rule for prebake potlines subject to POM and PM emission limits and for pitch storage tanks subject to POM equipment standards;
- The compliance date of 1 year after date of publication of final rule was added for Soderberg potlines subject to PCB emission limits; and
- The compliance date of 2 years after date of publication of final rule was added for anode bake furnaces subject to Hg emission limits.

For more discussion of the promulgated compliance dates, refer to the document, Final Rationale for Selection of

Compliance Dates for the Primary Aluminum Production Source Category, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797).

3. What key comments did we receive regarding compliance dates and what are our responses?

**Comment:** Several commenters stated concern with the compliance dates outlined in the supplemental proposal. The commenters stated that the compliance dates in the December 2014 proposal are in marked contrast to the 2011 proposal that included a 3-year compliance window for all changes. The commenters stated that they are concerned that the rationale used to dramatically shorten the compliance timelines is not reflective of actual on-site conditions and decision-making/approval processes for the changes required for compliance. The commenters stated that new emission limits imposed on the affected facilities will require installation of additional emission controls and/or monitoring devices.

The commenters stated that at least one facility will be required to install a Method 14 manifold or Method 14A cassette system in a currently operating potline for collecting roof monitor samples to determine emissions of PM and POM. The commenters stated that a number of facilities currently do not have an emission control system on their existing pitch storage tanks. The commenters stated that these facilities will be

required to install and test (or certify) an emission control system to meet the 95-percent POM reduction requirement.

The commenters stated that the effort involved in the determination of the exact changes that will be needed; the selection, installation, and startup of new controls and their associated equipment; and consideration of the business planning cycle for making significant new capital and operating expense monetary outlays all indicate that more than 1 year is needed to have the emissions control and monitoring devices installed and properly operational.

The commenters requested an increased amount of time for compliance dates for malfunction and ERT provisions, work practices, and emission limits.

**Response:** The EPA has received information from Alcoa that their Wenatchee facility currently has two potlines (potlines 2 and 3) that are not equipped with a Method 14 manifold or Method 14A cassette system. Either a manifold or cassette system is required to monitor secondary potline emissions and to demonstrate compliance with the potline PM and POM emission limits. Alcoa provided cost estimates for the installation of a Method 14 manifold and a Method 14A cassette system. These costs were estimated at \$500,000 (or approximately \$55,000 per year annualized) for either system (see Installation of Method 14 or 14A Sampling Equipment at Alcoa Wenatchee, Docket item number

EPA-HQ-OAR-2011-0797-0385). After considering this comment and after further evaluation, we agree that a compliance date of 2 years after publication of the final rule is appropriate for the demonstration of compliance with the potline emissions limits because some facilities may need to install Method 14 manifolds or Method 14A cassette systems to demonstrate compliance, and we believe that up to 2 years may be needed to plan, design, construct, and install such systems and complete the required testing and analyses.

After further evaluation, the EPA determined that the appropriate compliance date for the 95-percent POM reduction requirement for pitch storage tanks is 2 years from the publication date of the final rule. The EPA agrees with the commenters that this additional time may be needed to install, test, and certify emission control systems.

We are finalizing the proposed compliance dates for existing sources for the malfunction provisions and the electronic reporting provisions.

We are finalizing a compliance date of 1 year after date of publication of the final rule for potlines subject to the work practice standards and the COS emission limits, and for anode bake furnaces and paste production plants subject to work practices and PM emission limits.

We are finalizing a compliance date of 2 years after date of publication of the final rule for prebake potlines subject to POM emission limits; for Soderberg potlines subject to revised POM emission limits and emission limits for Ni, As, and PCB; for potlines subject to PM emissions limits; and for existing pitch storage tank POM equipment standards.

We are finalizing a compliance date of 2 years after date of publication of final rule for anode bake furnaces subject to Hg emission limits.

4. What is the rationale for our final approach regarding compliance dates?

The EPA extended the compliance dates for prebake potlines subject to POM and PM emissions limits from 1 to 2 years after date of publication of the final rule to give owners or operators an appropriate amount of time to install the manifolds or cassette systems necessary to sample the potline fugitive emissions. Monitoring of potline fugitive emissions will be required in order to demonstrate compliance with the promulgated POM and PM emissions limits unless the owner or operator can demonstrate potline similarity for purposes of these HAP pursuant to 40 CFR 63.848(d) of subpart LL, and the EPA finds that the 2 year compliance time allows adequate time for owners or operators to apply for similarity determinations.

Similarly, the compliance date for existing pitch storage tanks subject to POM equipment standards was extended by EPA from 1 to 2 years after date of publication of the final rule to give owners or operators an appropriate amount of time to install, test, and certify the emission control systems.

The compliance date of 1 year after date of publication of the final rule was added for Soderberg potlines subject to a PCB emission limit or D/F work practice standards. We believe that 1 year will be sufficient to demonstrate compliance with these requirements for existing Soderberg potlines, in the unlikely event that the existing Soderberg potlines are restarted, since the available data suggests that no modifications or additional controls are necessary to meet that limit.

The EPA added a compliance date of 2 years after date of publication of the final rule for anode bake furnaces subject to the Hg emission limit. We believe 2 years is justified in this case to provide industry sufficient time to schedule and perform testing and take appropriate subsequent steps to ensure compliance.

## **V. Summary of Cost, Environmental, and Economic Impacts and Additional Analyses Conducted**

### **A. What are the affected sources?**

The affected sources are new and existing potlines, new and existing pitch storage tanks, new and existing anode bake

furnaces (except for one that is located at a facility that only produces anodes for use off-site and is subject to the state MACT determination established by the regulatory authority), and new and existing paste production plants.

B. What are the air quality impacts?

We estimate that the promulgated lower VSS2 potline POM emissions limit would reduce POM emissions from the one Soderberg facility by approximately 53 tpy if the facility were to resume operation. Furthermore, we estimate that these standards would also result in about 1 tpy reduction of HAP metals and 40 tpy reduction of PM with diameter of 2.5 microns and less ( $PM_{2.5}$ ) if the one Soderberg facility reopened. We consider this very unlikely as the owner of that facility, Columbia Falls Aluminum Company, has publicly announced its permanent closure. However, we include this analysis because the potlines have not been demolished yet.

Finally, we estimate that the addition of controls to the eight existing uncontrolled pitch storage tanks located at prebake facilities would reduce POM emissions by 1.55 tpy.

C. What are the cost impacts?

Under the final amendments, facilities are subject to additional testing, monitoring, and equipment costs. Owners and operators are required to conduct semiannual tests for PM and POM emissions from potline roof vents, annual tests for PM and

POM from potline primary emissions, annual tests of PM and Hg from anode bake furnace exhausts, and annual tests of PM from paste production plant exhausts. These testing costs are offset by reduced frequency of secondary potline TF emissions testing (from monthly to semiannual). In addition, all emission stacks not equipped with either BLDS or PM CEMS are subject to increased frequency (from daily to twice daily) VE testing. Additional monitoring to demonstrate continuous compliance with PM standards for anode bake furnaces and paste production plants is required by the rule. Eight owners or operators of facilities operating uncontrolled pitch storage tanks are required to install and operate controls on these tanks, and the owner or operator of one facility with two potlines (one idle and one in operation) not currently equipped with either a manifold or a cassette system may be required to install this equipment. These amendments result in a net estimated reduction in testing costs of \$1.05 million, a net estimated increase in monitoring costs of \$625,000, and a net increase in estimated annualized capital equipment costs of \$260,000. Nationwide annual costs to industry are expected to decrease by an estimated \$165,000 per year under these amendments.

The memorandum, Final Cost Impacts for the Primary Aluminum Production Source Category, includes a description of the details and assumptions used for this analysis and is available



in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797).

D. What are the economic impacts?

We performed an economic impact analysis for the modifications in this action. That analysis estimates a net savings for each primary aluminum reduction facility based on the belief that the Columbia Falls Soderberg facility will not reopen. In March of 2015, the Columbia Falls Aluminum Company announced the permanent closure of their Soderberg facility. For more information, please refer to the Economic Impact Analysis for National Emissions Standards for Hazardous Air Pollutants: Primary Aluminum Reduction Plants and Final Economic Impact Analysis for the Primary Aluminum Production Source Category documents, which are available in the docket for this rulemaking.

E. What are the benefits?

If the Columbia Falls Soderberg facility were to resume operations, there would be an estimated reduction in its annual HAP emissions (i.e., about 53 tons) that would provide significant benefits to public health. In addition to the HAP reductions, which would ensure an ample margin of safety, we also estimate that this final rule would achieve about 230 tons of reductions in PM (including 40 tons of PM<sub>2.5</sub>) emissions as a

co-benefit of the HAP reductions annually (again assuming resumption of plant operation).

Further, we estimate that the addition of controls to the eight existing uncontrolled pitch storage tanks at prebake facilities would reduce POM emissions by 1.55 tpy.

This rulemaking is not an "economically significant regulatory action" under Executive Order 12866 because it is not likely to have an annual effect on the economy of \$100 million or more. Therefore, we have not conducted a Regulatory Impact Analysis (RIA) for this rulemaking or a benefits analysis. While we expect that these avoided emissions will improve air quality and reduce health effects associated with exposure to air pollution associated with these emissions, we have not quantified or monetized the benefits of reducing these emissions for this rulemaking. This does not imply that there are no benefits associated with these emission reductions. We provide a qualitative description of benefits associated with reducing these pollutants below. When determining whether the benefits of an action exceed its costs, Executive Orders 12866 and 13563 direct the Agency to consider qualitative benefits that are difficult to quantify, but nevertheless essential to consider.

Directly emitted particles are precursors to secondary formation of PM<sub>2.5</sub>. Controls installed to reduce HAP would also reduce ambient concentrations of PM<sub>2.5</sub> as a co-benefit. Reducing

exposure to PM<sub>2.5</sub> is associated with significant human health benefits, including avoiding mortality and morbidity from cardiovascular and respiratory illnesses. Researchers have associated PM<sub>2.5</sub> exposure with adverse health effects in numerous toxicological, clinical, and epidemiological studies (U.S. EPA, 2009).<sup>15</sup> When adequate data and resources are available and an RIA is required, the EPA generally quantifies several health effects associated with exposure to PM<sub>2.5</sub> (e.g., U.S. EPA, 2012).<sup>16</sup> These health effects include premature mortality for adults and infants, cardiovascular morbidities such as heart attacks, hospital admissions, and respiratory morbidities such as asthma attacks, acute bronchitis, hospital and emergency department visits, work loss days, restricted activity days, and respiratory symptoms. The scientific literature also suggests that exposure to PM<sub>2.5</sub> is associated with adverse effects on birth weight, pre-term births, pulmonary function, and other cardiovascular and respiratory effects (U.S. EPA, 2009), but the EPA has not quantified these impacts in its benefits analyses.

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<sup>15</sup> U.S. Environmental Protection Agency (U.S. EPA). 2009. Integrated Science Assessment for Particulate Matter (Final Report). EPA-600-R-08-139F. National Center for Environmental Assessment-RTP Division. Available on the Internet at <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=216546>.

<sup>16</sup> U.S. Environmental Protection Agency (U.S. EPA). 2012. Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter. Office of Air and Radiation, Research Triangle Park, NC. Available on the Internet at <http://www.epa.gov/ttn/ecas/regdata/RIAs/finalria.pdf>  
[http://www.epa.gov/ttnecas1/regdata/RIAs/PMRIACombinedFile\\_Bookmarked.pdf](http://www.epa.gov/ttnecas1/regdata/RIAs/PMRIACombinedFile_Bookmarked.pdf).

PM<sub>2.5</sub> also increases light extinction, which is an important aspect of visibility.

The rulemaking may prevent increases in emissions of other HAP, including HAP metals (As, cadmium, chromium (both total and hexavalent), lead, manganese, Hg, and Ni) and PAH. Some of these HAP are carcinogenic (e.g., As, PAH), and some have effects other than cancer (e.g., kidney disease from cadmium, respiratory and immunological effects from Ni). While we cannot quantitatively estimate the benefits achieved by reducing emissions of these HAP, we expect benefits by reducing exposures to these HAP. More information about the health effects of these HAP can be found on the IRIS,<sup>17</sup> U.S. Agency for Toxic Substances and Disease Registry (ATSDR),<sup>18</sup> and California EPA<sup>19</sup> Web sites.

#### F. What analysis of environmental justice did we conduct?

To examine the potential for any EJ issues that might be associated with the Primary Aluminum Production source category, we performed a demographic analysis, which is an assessment of risks to individual demographic groups, of the population close to the facilities. In this analysis, we evaluated the distribution of HAP-related cancer risks and non-cancer hazards

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<sup>17</sup> U.S. EPA, 2006. Integrated Risk Information System.  
<http://www.epa.gov/iris/index.html>.

<sup>18</sup> ATSDR, 2013. Minimum Risk Levels (MRLs) for Hazardous Substances.  
<http://www.atsdr.cdc.gov/mrls/index.html>.

<sup>19</sup> California Office of Environmental Health Hazard Assessment. Chronic Reference Exposure Levels Adopted by OEHHA as of December 2008.  
[http://www.oehha.ca.gov/air/chronic\\_rels](http://www.oehha.ca.gov/air/chronic_rels).

from this source category across different social, demographic, and economic groups within the populations living near facilities identified as having the highest risks. The results of the demographic analysis are summarized in Table 6 in section IV.A.3 of this preamble and indicate that there are no significant disproportionate risks to any particular minority, low income, or indigenous population (see the discussion in section IV.A.3 of this preamble). The methodology and the results of the demographic analyses are included in a technical report, Analysis of Socio-Economic Factors for Populations Living Near Primary Aluminum Facilities, which is available in the docket for this rulemaking (docket item No. EPA-HQ-OAR-2011-0797-0360).

G. What analysis of children's environmental health did we conduct?

This action is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because the Agency does not believe the environmental health risks or safety risks addressed by this action present a disproportionate risk to children. The report, Analysis of Socio-Economic Factors for Populations Living Near Primary Aluminum Facilities, which is available in the docket for this rulemaking, indicates that the percentages for all demographic groups exposed to various risk levels, including children, are similar to their respective nationwide

percentages. That report further shows that, prior to the implementation of the provisions included in this final rule, on a nationwide basis, there are approximately 900,000 people exposed to a cancer risk at or above 1-in-1 million and no people exposed to a chronic non-cancer TOSHI greater than 1 due to emissions from the source category.

## **VI. Statutory and Executive Order Reviews**

Additional information about these statutes and Executive Orders can be found at <http://www2.epa.gov/laws-regulations/laws-and-executive-orders>.

### A. Executive Orders 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a significant regulatory action and was, therefore, not submitted to the Office of Management and Budget (OMB) for review.

### B. Paperwork Reduction Act (PRA)

The information collection activities in this rule have been submitted for approval to the OMB under the PRA. The ICR document prepared by the EPA has been assigned EPA ICR number 2447.01. You can find a copy of the ICR in the docket for this rule (Docket ID No. EPA-HQ-OAR-2011-0797) and it is briefly summarized below. The information collection requirements are not enforceable until OMB approves them.

We are finalizing changes to the paperwork requirements for the Primary Aluminum Production source category facilities subject to 40 CFR part 63, subpart LL. In this final rule, we are promulgating less frequent testing of TF emissions from potlines. In addition, we are removing the burden associated with the affirmative defense provisions included in the December 2011 proposal.

We estimate 11 regulated entities are currently subject to CFR part 63, subpart LL and will be subject to this action. The annual monitoring, reporting, and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) as a result of the final amendments to 40 CFR part 63, subpart LL (NESHAP for Primary Aluminum Reduction Plants) is estimated to be -\$931,000 per year.

This includes 361 labor hours per year at a total labor cost of \$27,400 per year, and total non-labor capital, and operation and maintenance costs of -\$958,000 per year. This estimate includes performance tests, notifications, reporting, and recordkeeping associated with the new requirements for primary aluminum reduction plant operations. The total burden for the federal government (averaged over the first 3 years after the effective date of the standard) is estimated to be 181 hours per year at a total labor cost of \$8,250 per year. Burden is defined at 5 CFR 1320.3(b).

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. When OMB approves this ICR, the Agency will announce that approval in the **Federal Register** and publish a technical amendment to 40 CFR part 9 to display the OMB control number for the approved information collection activities contained in this final rule.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. There are no small entities in this regulated industry. For this source category, which has the NAICS code 331312, the Small Business Administration (SBA) small business size standard is 1,000 employees according to the SBA small business standards definitions.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of \$100 million or more as described in UMRA, 2 U.S.C. 1531-1538, and does not significantly or uniquely affect small governments. This action imposes no enforceable duty on any state, local, or tribal governments or the private sector.



E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. This action does not have substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in the Residual Risk Assessment for the Primary Aluminum Production Source Category in Support of

the September 2015 Risk and Technology Review Final Rule, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2011-0797).

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use

This action is not subject to Executive Order 13211 because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR part 51

This final action involves technical standards. The rule requires the use of either ASTM D4239-14e1, "Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion," approved March 1, 2014, or ASTM D6376-10, "Test Method for Determination of Trace Metals in Petroleum Coke by Wavelength Dispersive X-ray Fluorescence Spectroscopy," approved July 1, 2010. ASTM D4239-14e1, approved March 1, 2014, covers the determination of sulfur in samples of coal or coke by high temperature tube furnace combustion. ASTM D6376-10, approved July 1, 2010, covers the x-ray fluorescence spectrometric determination of total sulfur and trace metals in samples of raw or calcined petroleum coke. These are voluntary consensus methods. These methods can be obtained from the American Society for Testing and Materials, 100 Bar

Harbor Drive, West Conshohocken, Pennsylvania 19428 (telephone number (610) 832-9500). These methods were promulgated in the final rule because they are commonly used by primary aluminum reduction plants to demonstrate compliance with sulfur dioxide emission limitations imposed in their current title V permits.

This final rule also requires use of Method 428, "Determination Of Polychlorinated Dibenzo-P-Dioxin (PCDD), Polychlorinated Dibenzofuran (PCDF), and Polychlorinated Biphenyle Emissions (PCB) from Stationary Sources," amended September 12, 1990. Method 428, amended September 12, 1990, covers the determination of PCDD, PCDF, or PCB from stationary sources. The standard is available from the California Air Resources Board, 1001 "I" Street, Sacramento, CA 95812 (telephone number (800) 242-4450) or at their Web site, [http://www.arb.ca.gov/testmeth/vol3/m\\_428.pdf](http://www.arb.ca.gov/testmeth/vol3/m_428.pdf).

The EPA has decided to use EPA Method 29 for the determination of the concentration of Hg. While the EPA identified ASTM D6784-02(2008), "Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method)," ASTM International, West Conshohocken, PA, 2008, as being potentially applicable, the Agency decided not to use it. The use of this voluntary consensus standard would be more

expensive and is inconsistent with the final Hg standard that was determined using EPA Method 29 data.

Under 40 CFR 63.7(f) and 40 CFR 63.8(f) of Subpart A of the General Provisions, a source may apply to the EPA for permission to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications, or procedures in this final rule.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes the human health or environmental risk addressed by this action will not have potential disproportionately high and adverse human health or environmental effects on minority, low-income, or indigenous populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority, low-income or indigenous populations. For the Primary Aluminum Production source category, the EPA determined that the current health risks posed to anyone by actual emissions from this source category are within the acceptable range, and that this action will not appreciably reduce these risks further.

These final standards will improve public health and welfare, now and in the future, by reducing HAP emissions contributing to environmental and human health impacts. These reductions in HAP associated with the rule will benefit all populations.

To examine the potential for any EJ issues that might be associated with this source category, we evaluated the distributions of HAP-related cancer and non-cancer risks across different social, demographic, and economic groups within the populations living near the facilities where this source category is located. The methods used to conduct demographic analyses for this final rule, and the results of these analyses, are described in the document, Analysis of Socio-Economic Factors for Populations Living Near Primary Aluminum Facilities, which can be found in the docket for this rulemaking (Docket item number EPA-HQ-OAR-2011-0797-0360).

In the demographics analysis, we focused on populations within 50 kilometers of the facilities in this source category with emissions sources subject to 40 CFR part 63, subpart LL. More specifically, for these populations we evaluated exposures to HAP that could result in cancer risks of 1-in-one million or greater. We compared the percentages of particular demographic groups within the focused populations to the total percentages of those demographic groups nationwide.

K. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

### **List of Subjects in 40 CFR Part 63**

Environmental protection, Administrative practice and procedures, Air pollution control, Hazardous substances, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: September 10, 2015.

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Gina McCarthy,  
Administrator.

For the reasons stated in the preamble, Title 40, chapter I, of the Code of Federal Regulations (CFR) is amended as follows:

**PART 63--NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR  
POLLUTANTS FOR SOURCE CATEGORIES**

1. The authority citation for part 63 continues to read as follows:

**Authority:** 42 U.S.C. 7401, et seq.

**Subpart A - General Provisions**

2. Section 63.14 is amended:

- a. By redesignating paragraphs (b) (1) and (2) as paragraphs (b) (2) and (3), respectively, and adding new paragraph (b) (1);
- b. By redesignating paragraphs (h) (77) through (95) as paragraphs (h) (80) through (98), respectively;
- c. By redesignating paragraphs (h) (53) through (76) as paragraphs (h) (55) through (78), respectively;
- d. By redesignating paragraphs (h) (33) through (52) as paragraphs (h) (34) through (53), respectively;
- e. By adding new paragraphs (h) (33), (54) and (79); and
- f. By redesignating paragraphs (k) (1) through (4) as paragraphs (k) (2) through (5), respectively, and adding new paragraph (k) (1).

The additions read as follows:

**§ 63.14 Incorporations by reference.**

\* \* \* \* \*



(b) \* \* \*

(1) Industrial Ventilation: A Manual of Recommended Practice, 22nd Edition, 1995, Chapter 3, "Local Exhaust Hoods" and Chapter 5, "Exhaust System Design Procedure." IBR approved for §§ 63.843(b) and 63.844(b).

\* \* \* \* \*

(h) \* \* \*

(33) ASTM D2986-95A, "Standard Practice for Evaluation of Air Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test," approved September 10, 1995, IBR approved for section 7.1.1 of Method 315 in appendix A to this part.

\* \* \* \* \*

(54) ASTM D4239-14e1, "Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion," approved March 1, 2014, IBR approved for § 63.849(f).

\* \* \* \* \*

(79) ASTM D6376-10, "Standard Test Method for Determination of Trace Metals in Petroleum Coke by Wavelength Dispersive X-Ray Fluorescence Spectroscopy," Approved July 1, 2010, IBR approved for § 63.849(f).

\* \* \* \* \*

(k) \* \* \*

(1) Method 428, "Determination Of Polychlorinated Dibenzo-P-Dioxin (PCDD), Polychlorinated Dibenzofuran (PCDF), and Polychlorinated Biphenyle Emissions from Stationary Sources," amended September 12, 1990, IBR approved for § 63.849(a)(13) and (14).

\* \* \* \* \*

**Subpart LL – National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants**

3. Section 63.840 is amended by revising paragraph (a) to read as follows:

**§ 63.840 Applicability.**

(a) Except as provided in paragraph (b) of this section, the requirements of this subpart apply to the owner or operator of each new or existing pitch storage tank, potline, paste production plant and anode bake furnace associated with primary aluminum production and located at a major source as defined in § 63.2.

\* \* \* \* \*

**§ 63.841 [Removed and reserved]**

4. Section 63.841 is removed and reserved.

5. Section 63.842 is amended by:

a. Adding, in alphabetical order, a definition of "High purity aluminum";

b. Removing the definition for "Horizontal stud Soderberg (HSS) process";

c. Adding, in alphabetical order, definitions of "Operating day" and "Particulate matter (PM)";

d. Revising the definition for "Paste production plant";

e. Adding, in alphabetical order definitions of "Polychlorinated biphenyl (PCB)", "Startup of an anode bake furnace", and "Toxicity equivalence (TEQ)"; and

f. Removing the definition for "Vertical stud Soderberg one (VSS1)".The revisions and additions read as follows:

**§ 63.842 Definitions.**

\* \* \* \* \*

High purity aluminum means aluminum produced with an average purity level of at least 99.9 percent.

\* \* \* \* \*

Operating day means a 24-hour period between 12 midnight and the following midnight during which an affected source operates at any time. It is not necessary for operations to occur for the entire 24-hour period.

Particulate matter (PM) means, for the purposes of this subpart, emissions of particulate matter that serve as a measure of total particulate emissions and as a surrogate for metal hazardous air pollutants contained in the particulates, including but not

limited to: antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel and selenium.

Paste production plant means the processes whereby calcined petroleum coke, coal tar pitch (hard or liquid) and/or other materials are mixed, transferred and formed into briquettes or paste for vertical stud Soderberg (VSS) processes or into green anodes for a prebake process. This definition includes all operations from initial mixing to final forming (i.e., briquettes, paste, green anodes) within the paste production plant, including conveyors and units managing heated liquid pitch.

\* \* \* \* \*

Polychlorinated biphenyl (PCB) means any or all of the 209 possible chlorinated biphenyl isomers.

\* \* \* \* \*

Startup of an anode bake furnace means the process of initiating heating to the anode bake furnace. The startup or re-start of the furnace begins when the heating begins. The startup or re-start concludes at the start of the second anode bake cycle if the furnace was at ambient temperature upon startup or when the anode bake cycle resumes if the furnace was not at ambient temperature.

\* \* \* \* \*

Toxicity equivalence (TEQ) means an international method of expressing toxicity equivalents for PCBs as defined in U. S. EPA, Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2,3,7,8-Tetrachlorodibenzo-p-dioxin and Dioxin-Like Compounds, EPA/100/R-10/005 December 2010.

\* \* \* \* \*

6. Section 63.843 is amended by:

- a. Revising paragraph (a) introductory text, and paragraphs (a) (1) (iv), (a) (1) (vi), and (a) (2) (iii);
- b. Removing paragraph (a) (1) (vii);
- c. Removing and reserving paragraphs (a) (1) (v), (a) (2) (i) and (a) (2) (ii);
- d. Adding paragraphs (a) (2) (iv) through (vii);
- e. Redesignating paragraph (a) (3) as (a) (7) and adding new paragraphs (a) (3) through (6);
- f. Revising paragraph (b) introductory text, and paragraph (b) (1);
- g. Adding paragraph (b) (4);
- h. Revising paragraph (c); and
- i. Adding paragraphs (d), (e) and (f).

The revisions and additions read as follows:

**§ 63.843 Emission limits for existing sources.**

(a) Potlines. The owner or operator shall not discharge or cause to be discharged into the atmosphere any emissions of TF,

POM, PM, nickel, arsenic or PCB in excess of the applicable limits in paragraphs (a)(1) through (6) of this section.

(1) \* \* \*

(iv) 0.8 kg/Mg (1.6 lb/ton) of aluminum produced for each SWPB potline; and

(v) [Reserved]

(vi) 1.35 kg/Mg (2.7 lb/ton) of aluminum produced for each VSS2 potline.

(2) \* \* \*

(i) [Reserved]

(ii) [Reserved]

(iii) 0.85 kg/Mg (1.9 lb/ton) of aluminum produced for each VSS2 potline;

(iv) 0.55 kg/Mg (1.1 lb/ton) of aluminum produced for each CWPB1 prebake potline;

(v) 6.0 kg/Mg (12 lb/ton) of aluminum produced for each CWPB2 prebake potline;

(vi) 1.4 kg/Mg (2.7 lb/ton) of aluminum produced for each CWPB3 prebake potline; and

(vii) 8.5 kg/Mg (17 lb/ton) of aluminum produced for each SWPB prebake potline.

(3) PM limits. Emissions of PM shall not exceed:

(i) 3.7 kg/Mg (7.4 lb/ton) of aluminum produced for each CWPB1 potline;

(ii) 5.5 kg/Mg (11 lb/ton) of aluminum produced for each CWPB2 potline;

(iii) 10 kg/Mg (20 lb/ton) of aluminum produced for each CWPB3 potline;

(iv) 2.45 kg/Mg (4.9 lb/ton) of aluminum produced for each SWPB potline; and

(v) 13 kg/Mg (26 lb/ton) of aluminum produced for each VSS2 potline.

(4) Nickel limit. Emissions of nickel shall not exceed 0.07 lb/ton of aluminum produced from each VSS2 potline at a primary aluminum reduction plant.

(5) Arsenic limit. Emissions of arsenic shall not exceed 0.006 lb/ton of aluminum produced from each VSS2 potline at a primary aluminum reduction plant.

(6) PCB limit. Emissions of PCB shall not exceed 2.0 µg toxicity equivalence (TEQ) per ton of aluminum produced from each VSS2 potline at a primary aluminum reduction plant.

(7) \* \* \*

(b) Paste production plants. The owner or operator shall install, operate and maintain equipment to capture and control POM and PM emissions from each paste production plant.

(1) The emission capture system shall be installed and operated to meet the generally accepted engineering standards for minimum exhaust rates as published by the American

Conference of Governmental Industrial Hygienists in Chapters 3 and 5 of "Industrial Ventilation: A Handbook of Recommended Practice" (incorporated by reference; see § 63.14); and

\* \* \* \* \*

(4) PM limit. Emissions of PM shall not exceed 0.041 kg/Mg (0.082 lb/ton) of paste.

(c) Anode bake furnaces. The owner or operator shall not discharge or cause to be discharged into the atmosphere any emissions of TF, POM, PM or mercury in excess of the limits in paragraphs (c)(1) through (4) of this section.

(1) TF limit. Emissions of TF shall not exceed 0.10 kg/Mg (0.20 lb/ton) of green anode;

(2) POM limit. Emissions of POM shall not exceed 0.09 kg/Mg (0.18 lb/ton) of green anode;

(3) PM limit. Emissions of PM shall not exceed 0.10 kg/Mg (0.20 lb/ton) of green anode; and

(4) Mercury limit. Emissions of mercury shall not exceed 1.7 µg/dscm.

(d) Pitch storage tanks. Each pitch storage tank shall be equipped with an emission control system designed and operated to reduce inlet emissions of POM by 95 percent or greater.

(e) COS limit. Emissions of COS must not exceed 1.95 kg/Mg (3.9 lb/ton) of aluminum produced for each potline.



(f) At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source.

7. Section 63.844 is amended by:

- a. Revising paragraph (a) introductory text, and paragraph (a) (2);
- b. Adding paragraphs (a) (3) through (6);
- c. Revising paragraph (b);
- d. Revising paragraph (c); and
- e. Adding paragraphs (e) and (f).

The revisions and additions read as follows:

**§ 63.844 Emission limits for new or reconstructed sources.**

(a) Potlines. The owner or operator shall not discharge or cause to be discharged into the atmosphere any emissions of TF, POM, PM, nickel, arsenic or PCB in excess of the applicable limits in paragraphs (a) (1) through (6) of this section.

\* \* \* \* \*

(2) POM limit. Emissions of POM from potlines must not exceed 0.39 kg/Mg (0.77 lb/ton) of aluminum produced.

(3) PM limit. Emissions of PM from potlines must not exceed 2.45 kg/Mg (4.9 lb/ton) of aluminum produced.

(4) Nickel limit. Emissions of nickel shall not exceed 0.035 kg/Mg (0.07 lb/ton) of aluminum produced from each Soderberg potline at a primary aluminum reduction plant.

(5) Arsenic limit. Emissions of arsenic shall not exceed 0.003 kg/Mg (0.006 lb/ton) of aluminum produced from each Soderberg potline at a primary aluminum reduction plant.

(6) PCB limit. Emissions of PCB shall not exceed 2.0 µg TEQ/ton of aluminum produced from each Soderberg potline at a primary aluminum reduction plant.

(b) Paste production plants. (1) The owner or operator shall meet the requirements in § 63.843(b)(1) through (3) for existing paste production plants and shall not discharge or cause to be discharged into the atmosphere any emissions of PM in excess of the limit in paragraph (b)(2) of this section.

(2) Emissions of PM shall not exceed 0.0028 kg/Mg (0.0056 lb/ton) of green anode.

(c) Anode bake furnaces. The owner or operator shall not discharge or cause to be discharged into the atmosphere any emissions of TF, PM, POM or mercury in excess of the limits in paragraphs (c)(1) through (4) of this section.

(1) TF limit. Emissions of TF shall not exceed 0.01 kg/Mg (0.02 lb/ton) of green anode;

(2) POM limit. Emissions of POM shall not exceed 0.025 kg/Mg (0.05 lb/ton) of green anode;

(3) PM limit. Emissions of PM shall not exceed 0.035 kg/Mg (0.07 lb/ton) of green anode; and

(4) Mercury limit. Emissions of mercury shall not exceed 1.7 µg/dscm.

\* \* \* \* \*

(e) COS limit. Emissions of COS must not exceed 1.55 kg/Mg (3.1 lb/ton) of aluminum produced for each potline.

(f) At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source.

8. Section 63.846 is amended by:

a. Revising paragraph (b);

b. Revising paragraph (c);

c. Revising paragraphs (d) (2) (ii) through (iv) and (d) (4) (i) through (iii); and

d. Removing paragraph (d) (4) (iv).

The revisions read as follows:

**§ 63.846 Emission averaging.**

\* \* \* \* \*

(b) Potlines. The owner or operator may average emissions from potlines and demonstrate compliance with the limits in Tables 1 through 3 of this subpart using the procedures in paragraphs (b) (1) through (3) of this section.

(1) Semiannual average emissions of TF shall not exceed the applicable emission limit in Table 1 of this subpart. The emission rate shall be calculated based on the total primary and secondary emissions from all potlines comprising the averaging group over the period divided by the quantity of aluminum produced during the period, from all potlines comprising the averaging group. To determine compliance with the applicable emission limit in Table 1 of this subpart for TF emissions, the owner or operator shall determine the average emissions (in lb/ton) from each potline from at least three runs per potline semiannually for TF secondary emissions and at least three runs per potline primary control system each year using the procedures and methods in §§ 63.847 and 63.849. The owner or operator shall combine the results of secondary TF average

emissions with the TF results for the primary control system and divide total emissions by total aluminum production.

(2) Semiannual average emissions of POM shall not exceed the applicable emission limit in Table 2 of this subpart. The emission rate shall be calculated based on the total primary and secondary emissions from all potlines comprising the averaging group over the period divided by the quantity of aluminum produced during the period, from all potlines comprising the averaging group. To determine compliance with the applicable emission limit in Table 2 of this subpart for POM emissions, the owner or operator shall determine the average emissions (in lb/ton) from each potline from at least three runs per potline semiannually for POM secondary emissions and at least three runs per potline primary control system each year for POM primary emissions using the procedures and methods in §§ 63.847 and 63.849. The owner or operator shall combine the results of secondary POM average emissions with the POM results for the primary control system and divide total emissions by total aluminum production.

(3) Semiannual average emissions of PM shall not exceed the applicable emission limit in Table 3 of this subpart. The emission rate shall be calculated based on the total primary and secondary emissions from all potlines comprising the potline group over the period divided by the quantity of aluminum

produced during the period, from all potlines comprising the averaging group. To determine compliance with the applicable emission limit in Table 3 of this subpart for PM emissions, the owner or operator shall determine the average emissions (in lb/ton) from each potline from at least three runs per potline semiannually for PM secondary emissions and at least three runs per potline primary control system each year for PM primary emissions using the procedures and methods in §§ 63.847 and 63.849. The owner or operator shall combine the results of secondary PM average emissions with the PM results for the primary control system and divide total emissions by total aluminum production.

(c) Anode bake furnaces. The owner or operator may average TF emissions from anode bake furnaces and demonstrate compliance with the limits in Table 4 of this subpart using the procedures in paragraphs (c)(1) and (2) of this section. The owner or operator also may average POM emissions from anode bake furnaces and demonstrate compliance with the limits in Table 4 of this subpart using the procedures in paragraphs (c)(1) and (2) of this section. The owner or operator also may average PM emissions from anode bake furnaces and demonstrate compliance with the limits in Table 4 of this subpart using the procedures in paragraphs (c)(1) and (2) of this section.

(1) Annual emissions of TF, POM and/or PM from a given number of anode bake furnaces making up each averaging group shall not exceed the applicable emission limit in Table 4 of this subpart in any one year; and

(2) To determine compliance with the applicable emission limit in Table 4 of this subpart for anode bake furnaces, the owner or operator shall determine TF, POM and/or PM emissions from the control device for each anode bake furnace at least once each year using the procedures and methods in §§ 63.847 and 63.849.

(d) \* \* \*

(2) \* \* \*

(ii) The assigned TF, POM and/or PM emission limit for each averaging group of potlines and/or anode bake furnaces;

(iii) The specific control technologies or pollution prevention measures to be used for each emission source in the averaging group and the date of its installation or application. If the pollution prevention measures reduce or eliminate emissions from multiple sources, the owner or operator must identify each source;

(iv) The test plan for the measurement of TF, POM and/or PM emissions in accordance with the requirements in § 63.847(b);

\* \* \* \* \*

(4) \* \* \*

(i) Any averaging between emissions of differing pollutants or between differing sources. Emission averaging shall not be allowed between TF, POM and/or PM, and emission averaging shall not be allowed between potlines and anode bake furnaces;

(ii) The inclusion of any emission source other than an existing potline or existing anode bake furnace or the inclusion of any potline or anode bake furnace not subject to the same operating permit; or

(iii) The inclusion of any potline or anode bake furnace while it is shut down, in the emission calculations.

\* \* \* \* \*

9. Section 63.847 is amended by:

- a. Revising paragraph (a) introductory text, and paragraphs (a) (1) and (a) (2);
- b. Removing and reserving paragraph (a) (3);
- c. Adding paragraphs (a) (5) through (9); d. Removing and reserving paragraph (b) (6);
- e. Revising paragraph (c) introductory text, paragraph (c) (1), and paragraph (c) (2) introductory text;
- f. Adding paragraph (c) (2) (iv);
- g. Revising paragraph (c) (3) introductory text;
- h. Adding paragraphs (c) (3) (iii) and (iv);
- i. Revising paragraph (d) introductory text and paragraph (d) (1);



- j. Removing and reserving paragraph (d) (2);
- k. Revising paragraph (d) (4);
- l. Adding paragraphs (d) (5) through (7);
- m. Revising paragraph (e) introductory text, and paragraph (e) (1);
- n. Removing and reserving paragraph (e) (2);
- o. Revising paragraphs (e) (3) and (e) (4);
- p. Adding paragraph (e) (8);
- q. Revising paragraph (f);
- r. Revising paragraph (g) introductory text, and paragraphs (g) (2) (ii) and (iv);
- s. Adding and reserving paragraph (i); and
- t. Adding paragraphs (j), (k), (l) and (m).

The revisions and additions read as follows:

**§ 63.847 Compliance provisions.**

(a) Compliance dates. The owner operator of a primary aluminum reduction plant must comply with the requirements of this subpart by the applicable compliance date in paragraph (a) (1), (a) (2) or (a) (4) of this section:

(1) Except as noted in paragraph (a) (2) of this section, the compliance date for an owner or operator of an existing plant or source subject to the provisions of this subpart is October 7, 1999.

(2) The compliance dates for existing plants and sources are:

(i) **[Insert date of publication in the Federal Register]** for the malfunction provisions of § 63.850(d)(2) and (e)(4)(xvi) and (xvii) and the electronic reporting provisions of § 63.850(b), (c) and (f) which became effective **[Insert date of publication in the Federal Register]**.

(ii) **[Insert date 1 year after date of publication in the Federal Register]** for potline work practice standards in § 63.854 and COS emission limit provisions of § 63.843(e); for anode bake furnace startup practices in § 63.847(l) and PM emission limits in § 63.843(c)(3); for Soderberg potline PM and PCB emission limits in § 63.843(a)(3)(v) and (a)(6); and for paste production plant startup practices in § 63.847(m) and PM emission limits in § 63.843(b)(4) which became effective **[Insert date of publication in the Federal Register]**.

(iii) **[Insert date 2 years after date of publication in the Federal Register]** for prebake potline POM emission limits in § 63.843(a)(2)(iv) through (vii); for Soderberg potline POM, As and Ni emission limits in §§ 63.843(a)(2)(iii), (a)(4) and (5); for prebake potline PM emission limits in § 63.843(a)(3); for anode bake furnace Hg emission limits in § 63.843(c)(4); and for the pitch storage tank POM limit provisions of § 63.843(d) which

became effective **[Insert date of publication in the Federal Register]**.

(3) [Reserved]

\* \* \* \* \*

(5) Except as provided in paragraphs (a) (6) and (7) of this section, a new affected source is one for which construction or reconstruction commenced after September 26, 1996.

(6) For the purposes of compliance with the emission standards for PM, a new affected potline, anode bake furnace or paste production plant is one for which construction or reconstruction commenced after December 8, 2014.

(7) For the purposes of compliance with the emission standards for POM and COS, a new affected prebake potline is one for which construction or reconstruction commenced after December 8, 2014.

(8) For the purposes of compliance with the emission standards for As, Ni and POM, a new affected Soderberg potline is one for which construction or reconstruction commenced after December 8, 2014.

(9) For the purposes of compliance with the emission standards for Hg, a new affected anode bake furnace is one for which construction or reconstruction commenced after December 8, 2014.

\* \* \* \* \*

(b) \* \* \*

(6) [Reserved]

\* \* \* \* \*

(c) Following approval of the site-specific test plan, the owner or operator must conduct a performance test to demonstrate initial compliance according to the procedures in paragraph (d) of this section. If a performance test has been conducted on the primary control system for potlines, the anode bake furnace, the paste production plant, or (if applicable) the pitch storage tank control device within the 12 months prior to the compliance date, the results of that performance test may be used to demonstrate initial compliance. The owner or operator must conduct the performance test:

(1) During the first month following the compliance date for an existing potline (or potroom group), anode bake furnace, paste production plant or pitch storage tank.

(2) By the date determined according to the requirements in paragraph (c)(2)(i), (ii), (iii), or (iv) of this section for a new or reconstructed potline, anode bake furnace, or pitch storage tank (for which the owner or operator elects to conduct an initial performance test):

\* \* \* \* \*

(iv) By the 30th day following startup of a paste production plant. The 30-day period starts when the paste production plant produces green anodes.

(3) By the date determined according to the requirements in paragraph (c)(3)(i), (ii), (iii) or (iv) of this section for an existing potline, anode bake furnace, paste production plant, or pitch storage tank that was shut down at the time compliance would have otherwise been required and is subsequently restarted:

\* \* \* \* \*

(iii) By the 30th day following startup of a paste production plant. The 30-day period starts when the paste production plant produces green anodes.

(iv) By the 30th day following startup for a pitch storage tank. The 30-day period starts when the tank is first used to store pitch.

(d) Performance test requirements. The initial performance test and all subsequent performance tests must be conducted in accordance with the applicable requirements of the general provisions in subpart A of this part, the approved test plan and the procedures in this section. Performance tests must be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request,

the owner or operator must make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(1) TF, POM and PM emissions from potlines. For each potline, the owner or operator shall measure and record the emission rates of TF, POM and PM exiting the outlet of the primary control system and the rate of secondary emissions exiting through each roof monitor, or for a plant with roof scrubbers, exiting through the scrubbers. Using the equation in paragraph (e)(1) of this section, the owner or operator shall compute and record the average of at least three runs semiannually for secondary emissions and at least three runs each year for the primary control system to determine compliance with the applicable emission limit. Compliance is demonstrated when the emission rates of TF, POM, and PM are equal to or less than the applicable emission limits in § 63.843, § 63.844, or § 63.846.

(2) [Reserved]

\* \* \* \* \*

(4) TF, POM, PM and Hg emissions from anode bake furnaces. For each anode bake furnace, the owner or operator shall measure and record the emission rate of TF, POM, PM and Hg exiting the exhaust stacks(s) of the primary emission control system. In accordance with paragraphs (e)(3) and (4) of this section, the

owner or operator shall compute and record the average of at least three runs each year to determine compliance with the applicable emission limits for TF, POM, PM and Hg. Compliance is demonstrated when the emission rates of TF, POM, PM and Hg are equal to or less than the applicable TF, POM, PM and Hg emission limits in § 63.843, § 63.844 or § 63.846.

(5) Nickel emissions from VSS2 Potlines and new Soderberg potlines. (i) For each VSS2 potline, and for each new Soderberg potline, the owner or operator must measure and record the emission rate of nickel exiting the primary emission control system and the rate of secondary emissions of nickel exiting through each roof monitor, or for a plant with roof scrubbers, exiting through the scrubbers. Using the equation in paragraph (e)(1) of this section, the owner or operator must compute and record the average of at least three runs each year for secondary emissions and at least three runs each year for primary emissions.

(ii) Compliance is demonstrated when the emissions of nickel are equal to or less than the applicable emission limit in § 63.843(a)(4) or § 63.844(a)(4).

(6) Arsenic emissions from VSS2 Potlines and from new Soderberg potlines. (i) For each VSS2 potline, and for each new Soderberg potline, the owner or operator must measure and record the emission rate of arsenic exiting the primary emission

control system and the rate of secondary emissions of arsenic exiting through each roof monitor, or for a plant with roof scrubbers, exiting through the scrubbers. Using the equation in paragraph (e)(1) of this section, the owner or operator must compute and record the average of at least three runs each year for secondary emissions and at least three runs each year for primary emissions.

(ii) Compliance is demonstrated when the emissions of arsenic are equal to or less than the applicable emission limit in § 63.843(a)(5) or § 63.844(a)(5).

(7) PCB emissions from VSS2 Potlines and from new Soderberg potlines. (i) For each VSS2 potline, and for each new Soderberg potline, the owner or operator must measure and record the emission rate of PCB exiting the primary emission control system and the rate of secondary emissions of PCB exiting through each roof monitor, or for a plant with roof scrubbers, exiting through the scrubbers. Using the equation in paragraph (e)(1) of this section, the owner or operator must compute and record the average of at least three runs each year for secondary emissions and at least three runs each year for primary emissions.

(ii) Compliance is demonstrated when the emissions of PCB are equal to or less than the applicable emission limit in § 63.843(a)(6) or § 63.844(a)(6).



(e) The owner or operator shall determine compliance with the applicable TF, POM, PM, nickel, arsenic or PCB emission limits using the following equations and procedures:

(1) Compute the emission rate ( $E_p$ ) of TF, POM, PM, nickel, arsenic or PCB from each potline using Equation 1:

$$E_p = \frac{[(C_{s1} \times Q_{sd})_1 + (C_{s2} \times Q_{sd})_2]}{(P \times K)} \quad (\text{Equation 1})$$

Where:

$E_p$  = emission rate of TF, POM, PM, nickel or arsenic from a potline, kg/Mg (lb/ton) (or  $\mu\text{g TEQ/ton}$  for PCB);

$C_{s1}$  = concentration of TF, POM, PM, nickel or arsenic from the primary control system, mg/dscm (mg/dscf) (or  $\mu\text{g TEQ/dscf}$  for PCB);

$Q_{sd}$  = volumetric flow rate of effluent gas corresponding to the appropriate subscript location, dscm/hr (dscf/hr);

$C_{s2}$  = concentration of TF, POM, PM, nickel or arsenic as measured for roof monitor emissions, mg/dscm (mg/dscf) (or  $\mu\text{g TEQ/dscf}$  for PCB);

$P$  = aluminum production rate, Mg/hr (ton/hr);

$K$  = conversion factor,  $10^6$  mg/kg (453,600 mg/lb) for TF, POM, PM, nickel or arsenic (= 1 for PCB);

$_1$  = subscript for primary control system effluent gas; and

$_2$  = subscript for secondary control system or roof monitor effluent gas.

(2) [Reserved]

(3) Compute the emission rate ( $E_b$ ) of TF, POM or PM from each anode bake furnace using Equation 2,

$$E_b = \frac{(C_s \times Q_{sd})}{(P_b \times K)} \quad (\text{Equation 2})$$

Where:

$E_b$  = emission rate of TF, POM or PM, kg/mg (lb/ton) of green anodes;

$C_s$  = concentration of TF, POM or PM, mg/dscm (mg/dscf);

$Q_{sd}$  = volumetric flow rate of effluent gas, dscm/hr (dscf/hr);

$P_b$  = quantity of green anode material placed in the furnace, mg/hr (ton/hr); and

$K$  = conversion factor,  $10^6$  mg/kg (453,600 mg/lb).

(4) Compliance with the anode bake furnace Hg emission standard is demonstrated if the Hg concentration of the exhaust from the anode bake furnace control device is equal to or less than the applicable concentration standard in § 63.843(c)(4) or § 63.844(c)(4).

\* \* \* \* \*

(8) Compute the emission rate ( $E_{PMpp}$ ) of PM from each paste production plant using Equation 3,

$$E_{PMpp} = \frac{(C_s \times Q_{sd})}{(P_b \times K)} \quad \text{Equation 3}$$

Where:

$E_{PMpp}$  = emission rate of PM, kg/mg (lb/ton) of green anode material exiting the paste production plant;

$C_s$  = concentration of PM, mg/dscm (mg/dscf);

$Q_{sd}$  = volumetric flow rate of effluent gas, dscm/hr (dscf/hr);

$P_b$  = quantity of green anode material exiting the paste production plant, mg/hr (ton/hr); and

$K$  = conversion factor,  $10^6$  mg/kg (453,600 mg/lb).

(f) Paste production plants. (1) Initial compliance with the POM standards for existing and new paste production plants in §§ 63.843(b) and 63.844(b) will be demonstrated through site inspection(s) and review of site records by the applicable regulatory authority.

(2) For each paste production plant, the owner or operator shall measure and record the emission rate of PM exiting the exhaust stacks(s) of the primary emission control system. Using the equation in paragraph (e)(8) of this section, the owner or operator shall compute and record the average of at least three runs each year to determine compliance with the applicable emission limits for PM. Compliance with the PM standards for existing and new paste production plants is demonstrated when the PM emission rates are less than or equal to the applicable PM emission limits in §§ 63.843(b)(4) and 63.844(b)(2).

(g) Pitch storage tanks. The owner or operator must demonstrate initial compliance with the standard for pitch

storage tanks in §§ 63.843(d) and 63.844(d) by preparing a design evaluation or by conducting a performance test. The owner or operator must submit for approval by the regulatory authority the information specified in paragraph (g)(1) of this section, along with the information specified in paragraph (g)(2) of this section where a design evaluation is performed or the information specified in paragraph (g)(3) of this section where a performance test is conducted.

\* \* \* \* \*

(2) \* \* \*

(ii) If an enclosed combustion device with a minimum residence time of 0.5 seconds and a minimum temperature of 760 degrees C (1,400 degrees F) is used to meet the emission reduction requirement specified in § 63.843(d) and § 63.844(d), documentation that those conditions exist is sufficient to meet the requirements of § 63.843(d) and § 63.844(d);

\* \* \* \* \*

(iv) If the pitch storage tank is vented to the emission control system installed for control of emissions from the paste production plant pursuant to § 63.843(b) or § 63.844(b)(1), documentation of compliance with the requirements of § 63.843(b) is sufficient to meet the requirements of § 63.843(d) or § 63.844(d);

\* \* \* \* \*

(i) [Reserved]

(j) Carbonyl sulfide (COS) emissions. The owner operator must calculate, for each potline, the emission rate of COS for each calendar month of operation using Equation 4:

$$E_{cos} = [K] \times \left[ \frac{Y}{Z} \right] \times [S] \quad \dots (Equation\ 4)$$

Where:

$E_{cos}$  = the emission rate of COS during the calendar month, pounds per ton of aluminum produced;

K = factor accounting for molecular weights and conversion of sulfur to carbonyl sulfide = 234;

Y = the mass of anode consumed in the potline during the calendar month, tons;

Z = the mass of aluminum produced by the potline during the calendar month, tons; and

S = the weighted average fraction of sulfur in the anode coke consumed in the production of aluminum during the calendar month (e.g., if the weighted average sulfur content of the anode coke consumed during the calendar month was 2.5 percent, then S = 0.025). The weight of anode coke used during the calendar month of each different concentration of sulfur is used to calculate the overall weighted average fraction of sulfur.

Compliance is demonstrated if the calculated value of  $E_{\text{COS}}$  is less than the applicable standard for COS emissions in §§ 63.843(e) and 63.844(e).

(k) Startup of potlines. The owner or operator must develop a written startup plan as described in § 63.854(b) that contains specific procedures to be followed during startup periods of potline(s). Compliance with the applicable standards in § 63.854(b) will be demonstrated through site inspection(s) and review of site records by the regulatory authority.

(l) Startup of anode bake furnaces. The owner or operator must develop a written startup plan as described in paragraphs (1)(1) through (4) of this section, to be followed during startup periods of bake furnaces. Compliance with the startup plan will be demonstrated through site inspection(s) and review of site records by the regulatory authority. The written startup plan must contain specific procedures to be followed during startup periods of anode bake furnaces, including the following:

(1) A requirement to develop an anode bake furnace startup schedule.

(2) Records of time, date, duration of anode bake furnace startup and any nonroutine actions taken during startup of the furnaces.

(3) A requirement that the associated emission control system be operating within normal parametric limits prior to startup of the anode bake furnace.

(4) A requirement to take immediate actions to stop the startup process as soon as practicable and continue to comply with § 63.843(f) or § 63.844(f) if the associated emission control system is off line at any time during startup. The anode bake furnace restart may resume once the associated emission control system is back on line and operating within normal parametric limits.

(m) Startup of paste production plants. The owner or operator must develop a written startup plan as described in paragraphs (m)(1) through (3) of this section, to be followed during startup periods for paste production plants. Compliance with the startup plan will be demonstrated through site inspection(s) and review of site records by the regulatory authority. The written startup plan must contain specific procedures to be followed during startup periods of paste production plants, including the following:

(1) Records of time, date, duration of paste production plant startup and any nonroutine actions taken during startup of the paste production plants.

(2) A requirement that the associated emission control system be operating within normal parametric limits prior to startup of the paste production plant.

(3) A requirement to take immediate actions to stop the startup process as soon as practicable and continue to comply with § 63.843(f) or § 63.844(f) if the associated emission control system is off line at any time during startup. The paste production plant restart may resume once the associated emission control system is back on line and operating within normal parametric limits.

10. Section 63.848 is amended by:

- a. Revising paragraphs (a), (b), (c), (d) introductory text, (d)(1)(ii), and (d)(7);
- b. Removing and reserving paragraph (e);
- c. Adding paragraphs (f)(6) and (7);
- d. Revising paragraph (g); and
- e. Adding paragraphs (n), (o) and (p).

The revisions and additions read as follows:

**§ 63.848 Emission monitoring requirements.**

(a) TF and PM emissions from potlines. Using the procedures in § 63.847 and in the approved test plan, the owner or operator shall monitor emissions of TF and PM from each potline by conducting annual performance tests on the primary control system and semiannual performance tests on the secondary



emissions. The owner or operator shall compute and record the average semiannually from at least three runs for secondary emissions and the average from at least three runs for the primary control system to determine compliance with the applicable emission limit. The owner or operator must include all valid runs in the semiannual average. The duration of each run for secondary emissions must represent a complete operating cycle. Potline emissions shall be recorded as the sum of the average of at least three runs from the primary control system and the average of at least three runs from the roof monitor or secondary emissions control device.

(b) POM emissions from potlines. Using the procedures in § 63.847 and in the approved test plan, the owner or operator must monitor emissions of POM from each potline stack annually and secondary potline POM emissions semiannually. The owner or operator must compute and record the semiannual average from at least three runs for secondary emissions and at least three runs for the primary control systems to determine compliance with the applicable emission limit. The owner or operator must include all valid runs in the semiannual average. The duration of each run for secondary emissions must represent a complete operating cycle. The primary control system must be sampled over an 8-hour period, unless site-specific factors dictate an alternative sampling time subject to the approval of the regulatory

authority. Potline emissions shall be recorded as the sum of the average of at least three runs from the primary control system and the average of at least three runs from the roof monitor or secondary emissions control device.

(c) TF, PM, Hg and POM emissions from anode bake furnaces.

Using the procedures in §63.847 and in the approved test plan, the owner or operator shall determine TF, PM, Hg and POM emissions from each anode bake furnace on an annual basis. The owner or operator shall compute and record the annual average of TF, PM, Hg and POM emissions from at least three runs to determine compliance with the applicable emission limits. A minimum of four dscm per run must be collected for monitoring of Hg emissions. The owner or operator must include all valid runs in the annual average.

(d) Similar potlines. As an alternative to semiannual monitoring of TF, POM or PM secondary emissions from each potline using the methods in § 63.849, the owner or operator may perform semiannual monitoring of TF, POM or PM secondary emissions from one potline using the test methods in § 63.849(a) or (b) to represent the performance of similar potline(s). The similar potline(s) must be monitored using an alternative method that meets the requirements of paragraphs (d)(1) through (7) of this section. Two or more potlines are similar if the owner or operator demonstrates that their structure, operability, type of

emissions, volume of emissions and concentration of emissions are substantially equivalent.

(1) \* \* \*

(ii) For TF, POM and PM emissions, must meet or exceed Method 14 criteria.

\* \* \* \* \*

(7) If the alternative method is approved by the applicable regulatory authority, the owner or operator must perform semiannual emission monitoring using the approved alternative monitoring procedure to demonstrate compliance with the alternative emission limit for each similar potline.

(e) [Reserved]

(f) \* \* \*

(6) For emission sources control device exhaust streams for which the owner or operator chooses to demonstrate continuous compliance through bag leak detection systems you must install and operate a bag leak detection system according to the requirements in paragraph (o) of this section, and you must set your operating limit such that the sum of the durations of bag leak detection system alarms does not exceed 5 percent of the process operating time during a 6-month period.

(7) For emission sources control device exhaust streams for which the owner or operator chooses to demonstrate continuous compliance through a PM CEMS, you must install and operate a PM

CEMS according to the requirements in paragraph (p) of this section. You must determine continuous compliance averaged on a rolling 30 operating day basis, updated at the end of each new operating day. All valid hours of data from 30 successive operating days shall be included in the arithmetic average. Compliance is demonstrated when the 30 operating day PM emissions are equal to or less than the applicable emission limits in § 63.843, § 63.844, or § 63.846.

(g) The owner or operator of a new or reconstructed affected source that is subject to a PM limit shall comply with the requirements of either paragraph (f)(6) or (7) of this section. The owner or operator of an existing affected source that is equipped with a control device and is subject to a PM limit shall:

(1) Install and operate a bag leak detection system in accordance with paragraph (f)(6) of this section; or

(2) Install and operate a PM CEMS in accordance with paragraph (f)(7) of this section; or

(3) Visually inspect the exhaust stack(s) of each fabric filter using Method 22 on a twice daily basis (at least 4 hours apart) for evidence of any visible emissions indicating abnormal operations and, must initiate corrective actions within 1 hour of a visible emissions inspection that indicates abnormal operation. Corrective actions shall include, at a minimum,

isolating, shutting down and conducting an internal inspection of the baghouse compartment that is the source of the visible emissions that indicate abnormal operations.

\* \* \* \* \*

(n) PM emissions from paste production plants. Using the procedures in § 63.847 and in the approved test plan, the owner or operator shall monitor PM emissions from each paste production plant on an annual basis. The owner or operator shall compute and record the annual average of PM emissions from at least three runs to determine compliance with the applicable emission limits. The owner or operator must include all valid runs in the annual average.

(o) Bag leak detection system. For each new affected source subject to a PM emissions limit, you must install, operate and maintain a bag leak detection system according to paragraphs (o)(1) through (3) of this section, unless a system meeting the requirements of paragraph (p) of this section, for a CEMS, is installed for monitoring the concentration of PM.

(1) You must develop and implement written procedures for control device maintenance that include, at a minimum, a preventative maintenance schedule that is consistent with the control device manufacturer's instructions for routine and long-term maintenance.

(2) Each bag leak detection system must meet the specifications and requirements in paragraphs (o)(2)(i) through (viii) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1.0 milligram per dry standard cubic meter (0.00044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative PM loadings.

(iii) The bag leak detection system must be equipped with an alarm system that will alarm when an increase in relative particulate loadings is detected over a preset level.

(iv) You must install, calibrate, operate and maintain the bag leak detection system according to the manufacturer's written specifications and recommendations.

(v) The initial adjustment of the system must, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device and establishing the alarm set points and the alarm delay time.

(vi) Following initial adjustment, you must not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except in accordance with the procedures developed under paragraph (o)(1) of this section. You cannot

increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless such adjustment follows a complete PM control device inspection that demonstrates that the PM control device is in good operating condition.

(vii) You must install the bag leak detector downstream of the PM control device.

(viii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(3) You must include in the written procedures required by paragraph (o)(1) of this section a corrective action plan that specifies the procedures to be followed in the case of a bag leak detection system alarm. The corrective action plan must include, at a minimum, the procedures that you will use to determine and record the time and cause of the alarm as well as the corrective actions taken to minimize emissions as specified in paragraphs (o)(3)(i) and (ii) of this section.

(i) The procedures used to determine the cause of the alarm must be initiated within 1 hour of the alarm.

(ii) The cause of the alarm must be alleviated by taking the necessary corrective action(s) that may include, but not be limited to, those listed in paragraphs (o)(3)(ii)(A) through (F) of this section.

(A) Inspecting the PM control device for air leaks, torn or broken filter elements, or any other malfunction that may cause an increase in emissions.

(B) Sealing off defective bags or filter media.

(C) Replacing defective bags or filter media, or otherwise repairing the control device.

(D) Sealing off a defective baghouse compartment.

(E) Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system.

(F) Shutting down the process producing the particulate emissions.

(p) Particulate Matter CEMS. If you are using a CEMS to measure particulate matter emissions to meet requirements of this subpart, you must install, certify, operate and maintain the particulate matter CEMS as specified in paragraphs (p)(1) through (4) of this section.

(1) You must conduct a performance evaluation of the PM CEMS according to the applicable requirements of § 60.13, and Performance Specification 11 at 40 CFR part 60, Appendix B of this chapter.

(2) During each PM correlation testing run of the CEMS required by Performance Specification 11 at 40 CFR part 60, Appendix B of this chapter, collect data concurrently by both



the CEMS and by conducting performance tests using Method 5, 5D or 5I at 40 CFR part 60, Appendix A-3.

(3) Operate and maintain the CEMS in accordance with Procedure 2 at 40 CFR part 60, Appendix F of this chapter. Relative Response Audits must be performed annually and Response Correlation Audits must be performed every three years.

11. Section 63.849 is amended by:

a. Revising paragraph (a) introductory text, and paragraphs (a) (6) and (a) (7); and

b. Adding paragraphs (a) (8) through (14), and (f).

The revisions and additions read as follows:

**§ 63.849 Test methods and procedures.**

(a) The owner or operator shall use the following reference methods to determine compliance with the applicable emission limits for TF, POM, PM, Ni, As, Hg, PCB and conduct visible emissions observations:

\* \* \* \* \*

(6) Method 315 in appendix A to this part or an approved alternative method for the concentration of POM where stack or duct emissions are sampled;

(7) Method 315 in appendix A to this part and Method 14 or 14A in appendix A to part 60 of this chapter or an approved alternative method for the concentration of POM where emissions are sampled from roof monitors not employing wet roof scrubbers.

Method 315 need not be set up as required in the method.

Instead, when using Method 14A, replace the Method 14A monitor cassette filter with the filter specified by Method 315. Recover and analyze the filter according to Method 315. When using Method 14, test at ambient conditions, do not heat the filter and probe, and do not analyze the back half of the sampling train;

(8) Method 5 in appendix A to part 60 of this chapter or an approved alternative method for the concentration of PM where stack or duct emissions are sampled;

(9) Method 17 and Method 14 or Method 14A in appendix A to part 60 of this chapter or an approved alternative method for the concentration of PM where emissions are sampled from roof monitors not employing wet roof scrubbers. Method 17 need not be set up as required in the method. Instead, when using Method 14A, replace the Method 14A monitor cassette filter with the filter specified by Method 17. Recover and analyze the filter according to Method 17. When using Method 14, test at ambient conditions, do not heat the filter and probe, and do not analyze the back half of the sampling train;

(10) Method 29 in appendix A to part 60 of this chapter or an approved alternative method for the concentration of mercury, nickel and arsenic where stack or duct emissions are sampled;

(11) Method 29 and Method 14 or Method 14A in appendix A to part 60 of this chapter or an approved alternative method for the concentration of nickel and arsenic where emissions are sampled from roof monitors not employing wet roof scrubbers. Method 29 need not be set up as required in the method. Instead, replace the Method 14A monitor cassette filter with the filter specified by Method 29. Recover and analyze the filter according to Method 29. When using Method 14, test at ambient conditions, do not heat the filter and probe, and do not analyze the back half of the sampling train;

(12) Method 22 in Appendix A to part 60 of this chapter or an approved alternative method for determination of visual emissions;

(13) Method 428 of the California Air Resources Board (incorporated by reference; see § 63.14) for the measurement of PCB where stack or duct emissions are sampled; and

(14) Method 428 of the California Air Resources Board (incorporated by reference; see § 63.14) and Method 14 or Method 14A in appendix A to part 60 of this chapter or an approved alternative method for the concentration of PCB where emissions are sampled from roof monitors not employing wet roof scrubbers.

\* \* \* \* \*

(f) The owner or operator must use either ASTM D4239-14e1 or ASTM D6376-10 (incorporated by reference; see § 63.14) for

determination of the sulfur content in anode coke shipments to determine compliance with the applicable emission limit for COS emissions.

12. Section 63.850 is amended by:

- a. Revising paragraphs (b), (c), and (d);
- b. Removing and reserving paragraph (e)(4)(iii);
- c. Revising paragraphs (e)(4)(xiv) and (e)(4)(xv); and
- d. Adding paragraphs (e)(4)(xvi), (e)(4)(xvii) and (f).

The revisions and additions read as follows:

**§ 63.850 Notification, reporting and recordkeeping requirements.**

\* \* \* \* \*

(b) Performance test reports. Within 60 days after the date of completing each performance test (as defined in § 63.2) required by this subpart, you must submit the results of the performance tests following the procedure specified in either paragraph (b)(1) or (b)(2) of this section.

(1) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (<http://www.epa.gov/ttn/chief/ert/index.html>) at the time of the test, you must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) ([https://cdx.epa.gov/epa\\_home.asp](https://cdx.epa.gov/epa_home.asp)). Performance test data must be submitted in a file format

generated through the use of the EPA's ERT. Alternatively, you may submit performance test data in an electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site once the XML schema is available. If you claim that some of the performance test information being submitted is confidential business information (CBI), you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(2) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, you must submit the results of the performance test to the Administrator at the appropriate address listed in § 63.13.

(3) For data collected which requires summation of results from both ERT and non-ERT supported test methods in order to

demonstrate compliance with an emission limit, you must submit the results of the performance test(s) used to demonstrate compliance with that emission limit to the Administrator at the appropriate address listed in § 63.13.

(c) Performance evaluation reports. Within 60 days after the date of completing each continuous emissions monitoring system performance evaluation (as defined in § 63.2), you must submit the results of the performance evaluation following the procedure specified in either paragraph (c)(1) or (2) of this section.

(1) For performance evaluations of continuous monitoring systems measuring relative accuracy test audit (RATA) pollutants that are supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, you must submit the results of the performance evaluation to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX.) Performance evaluation data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, you may submit performance evaluation data in an electronic file format consistent with the XML schema listed on the EPA's ERT Web site once the XML schema is available. If you claim that some of the performance evaluation information being transmitted is CBI, you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed

on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic storage media must be clearly marked as CBI and mailed to U.S.

EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703.

The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(2) For any performance evaluations of continuous monitoring systems measuring RATA pollutants that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, you must submit the results of the performance evaluation to the Administrator at the appropriate address listed in § 63.13.

(d) Reporting. In addition to the information required under § 63.10 of the General Provisions, the owner or operator must provide semiannual reports containing the information specified in paragraphs (d)(1) and (2) of this section to the Administrator or designated authority.

(1) Excess emissions report. As required by § 63.10(e)(3), the owner or operator must submit a report (or a summary report) if measured emissions are in excess of the applicable standard. The report must contain the information specified in

§ 63.10(e)(3)(v) and be submitted semiannually unless quarterly reports are required as a result of excess emissions.

(2) If there was a malfunction during the reporting period, the owner or operator must submit a report that includes the number, duration and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §§ 63.843(f) and 63.844(f), including actions taken to correct a malfunction.

(e) \* \* \*

(4) \* \* \*

(iii) [Reserved]

\* \* \* \* \*

(xiv) Records documenting any POM data that are invalidated due to the installation and startup of a cathode;

(xv) Records documenting the portion of TF that is measured as particulate matter and the portion that is measured as gaseous when the particulate and gaseous fractions are quantified separately using an approved test method;



(xvi) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control equipment and monitoring equipment; and

(xvii) Records of actions taken during periods of malfunction to minimize emissions in accordance with §§ 63.843(f) and 63.844(f), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(f) All reports required by this subpart not subject to the requirements in paragraph (b) or (c) of this section must be sent to the Administrator at the appropriate address listed in § 63.13. If acceptable to both the Administrator and the owner or operator of a source, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to paragraph (b) of this section in paper format.

13. Section 63.854 is added to read as follows:

**§ 63.854 Work practice standards for potlines.**

(a) Periods of operation other than startup. If you own or operate a new or existing primary aluminum reduction affected source, you must comply with the requirements of paragraphs (a)(1) through (8) of this section during periods of operation other than startup.

(1) Ensure the potline scrubbers and exhaust fans are operational at all times.

(2) Ensure that the primary capture and control system is operating at all times.

(3) Hood covers should be replaced as soon as possible after each potroom operation.

(4) Inspect potlines daily and perform the work practices specified in paragraphs (a)(4)(i) through (iii) of this section.

(i) Identify unstable pots as soon as practicable but in no case more than 12 hours from the time the pot became unstable;

(ii) Reduce cell temperatures to as low as practicable, and follow the written operating plan described in paragraph (b)(4) of this section if the cell temperature exceeds the specified high temperature limit; and

(iii) Reseal pot crusts that have been broken as often and as soon as practicable.

(5) Ensure that hood covers fit properly and are in good condition.

(6) If the exhaust system is equipped with an adjustable damper system, the hood exhaust rate for individual pots must be increased whenever hood covers are removed from a pot, provided that the exhaust system will not be overloaded by placing too many pots on high exhaust.

(7) Dust entrainment must be minimized during material handling operations and sweeping of the working aisles.

(8) Only tapping crucibles with functional aspirator air return systems (for returning gases under the collection hooding) can be used, unless the regulatory authority approves an alternative tapping crucible.

(b) Periods of startup. If you own or operate a new or existing primary aluminum reduction affected source, you must comply with the requirements of paragraphs (a)(1) through (8) and (b)(1) through (4) of this section during periods of startup for each affected potline.

(1) Develop a potline startup schedule before starting up the potline.

(2) Keep records of the number of pots started each day.

(3) Inspect potlines daily and adjust pot parameters to their optimum levels, as specified in the operating plan described in paragraph (b)(4) of this section, including, but not limited to: alumina addition rate, exhaust air flow rate, cell voltage, feeding level, anode current and liquid and solid bath levels.

(4) Prepare a written operating plan to minimize emissions during startup to include, but not limited to, the requirements in (b)(1) through (3) of this section. The operating plan must

include a specified high temperature limit for pots that will trigger corrective action.

14. Section 63.855 is added to read as follows:

**§ 63.855 Alternative emissions limits for co-controlled new and existing anode bake furnaces.**

(a) Applicability. The owner or operator of a new anode bake furnace meeting the criteria of paragraphs (a)(1) and (2) of this section may demonstrate compliance with alternative TF and POM emission limits according to the procedures of this section.

(1) The new anode bake furnace must have been permitted to operate prior to May 1, 1998; and

(2) The new anode bake furnace must share a common control device with one or more existing anode bake furnaces.

(b) TF emission limit. (1) Prior to the date on which each TF emission test is required to be conducted, the owner or operator must determine the applicable TF emission limit using Equation 6-A,

$$L_{TFC} = [(L_{TFE} \times P_E) + (0.018 \times P_N)] / (P_E + P_N) \quad Eq. 6-A$$

Where:

$L_{TFC}$  = Combined emission limit for TF, lb/ton green anode material placed in the bake furnace;

$L_{TFE}$  = TF limit for emission averaging for the total number of new and existing anode bake furnaces from Table 4 to this subpart;

$P_E$  = Mass of green anode placed in existing anode bake furnaces in the twelve months preceding the compliance test, ton/year; and

$P_N$  = Mass of green anode placed in new anode bake furnaces in the twelve months preceding the compliance test, ton/year.

(2) The owner or operator of a new anode bake furnace that is controlled by a control device that also controls emissions of TF from one or more existing anode bake furnaces must not discharge, or cause to be discharged into the atmosphere, any emissions of TF in excess of the emission limits established in paragraph (b)(1) of this section.

(c) POM emission limits. (1) Prior to the date on which each POM emission test is required to be conducted, the owner or operator must determine the applicable POM emission limit using Equation 6-B,

$$L_{POMC} = [(0.17 \times P_E) + (0.045 \times P_N)] / (P_E + P_N) \quad \text{Eq. 6-B}$$

Where:

$L_{POMC}$  = Combined emission limit for POM, lb/ton green anode material placed in the bake furnace.

(2) The owner or operator of a new anode bake furnace that is controlled by a control device that also controls emissions

of POM from one or more existing anode bake furnaces must not discharge, or cause to be discharged into the atmosphere, any emissions of TF in excess of the emission limits established in paragraph (c)(1) of this section.

15. Table 1 to Subpart LL of Part 63 is revised to read as follows:

**Table 1 to Subpart LL of Part 63—Potline TF Limits for Emission Averaging**

<b>Type</b>	<b>Semiannual TF limit (lb/ton)</b> <b>[for given number of potlines]</b>						
	<b>2 lines</b>	<b>3 lines</b>	<b>4 lines</b>	<b>5 lines</b>	<b>6 lines</b>	<b>7 lines</b>	<b>8 lines</b>
CWPB1	1.7	1.6	1.5	1.5	1.4	1.4	1.4
CWPB2	2.9	2.8	2.7	2.7	2.6	2.6	2.6
CWPB3	2.3	2.2	2.2	2.1	2.1	2.1	2.1
SWPB	1.4	1.3	1.3	1.2	1.2	1.2	1.2
VSS2	2.6	2.5	2.5	2.4	2.4	2.4	2.4

16. Table 2 to Subpart LL of Part 63 is revised to read as follows:

**Table 2 to Subpart LL of Part 63—Potline POM Limits for Emission Averaging**

<b>Type</b>	<b>Semiannual POM limit (lb/ton)</b> <b>[for given number of potlines]</b>						
	<b>2 lines</b>	<b>3 lines</b>	<b>4 lines</b>	<b>5 lines</b>	<b>6 lines</b>	<b>7 lines</b>	<b>8 lines</b>
CWPB1	1	0.9	0.9	0.9	0.8	0.8	0.8
CWPB2	11.6	11.2	10.8	10.8	10.4	10.4	10.4
CWPB3	2.5	2.4	2.4	2.3	2.3	2.3	2.3
SWPB	14.8	13.8	13.8	13.8	13.8	13.8	13.8
VSS2	1.7	1.6	1.5	1.5	1.4	1.4	1.4

17. Table 3 to Subpart LL of Part 63 is redesignated as Table 4 to Subpart LL of Part 63 and revised to read as follows:

**Table 4 to Subpart LL of Part 63—Anode Bake Furnace Limits for Emission Averaging**

Number of furnaces	Emission limit (lb/ton of anode)		
	TF	POM	PM
2	0.11	0.17	0.11
3	0.09	0.17	0.091
4	0.077	0.17	0.076
5	0.07	0.17	0.071

18. New Table 3 to Subpart LL of Part 63 is added to read as follows:

**Table 3 to Subpart LL of Part 63—Potliner PM Limits for Emission Averaging**

Type	Semiannual PM limit (lb/ton) [for given number of potlines]						
	2 lines	3 lines	4 lines	5 lines	6 lines	7 lines	8 lines
CWPB1	6.1	6.1	5.3	5.3	5.0	5.0	5.0
CWPB2	10.6	10.3	9.9	9.9	9.5	9.5	9.5
CWPB3	18.4	17.6	17.6	16.8	16.8	16.8	16.8
SWPB	4.3	3.9	3.9	3.7	3.7	3.7	3.7
VSS2	25	24.1	24.1	23.1	23.1	23.1	23.1

19. Appendix A to Subpart LL of Part 63 is revised to read as follows:

**Appendix A to Subpart LL of Part 63—Applicability of General Provisions (40 CFR Part 63, Subpart A)**

Reference Section(s) ...	Requirement	Applies to subpart LL	Comment
63.1 (a) (1) through (4)	General Applicability	Yes	
63.1 (a) (5)		No	[Reserved].
63.1 (a) (6)		Yes	
63.1 (a) (7) through (9)		No	[Reserved].
63.1 (a) (10) through (12)		Yes	
63.1 (b) (1) through (3)	Initial Applicability Determination	Yes	(b) (2) Reserved.
63.1 (c) (1)	Applicability after standard Established	Yes	
63.1 (c) (2)		Yes	Area sources are not subject to this subpart.



<b>Reference Section(s) ...</b>	<b>Requirement</b>	<b>Applies to subpart LL</b>	<b>Comment</b>
63.1 (c) (3) and (4)		No	[Reserved].
63.1 (c) (5)		Yes	
63.1 (d)		No	[Reserved].
63.1 (e)	Applicability of Permit Program	Yes	
63.2	Definitions	Yes	Reconstruction defined in § 63.842.
63.3	Units and Abbreviations	Yes	
63.4 (a) (1) and (2)	Prohibited activities	Yes	
63.4 (a) (3) through (5)		No	[Reserved].
63.4 (b) and (c)	Circumvention/Severability	Yes	
63.5 (a)	Construction/Reconstruction Applicability	Yes	
63.5 (b) (1)	Existing, New, Reconstructed Sources Requirements	Yes	
63.5 (b) (2)		No	[Reserved].
63.5 (b) (3) and (4)		Yes	
63.5 (b) (5)		No	[Reserved].
63.5 (b) (6)		Yes	
63.5 (c)		No	[Reserved].
63.5 (d)	Application for Approval of Construction/Reconstruction	Yes	

<b>Reference Section(s) ...</b>	<b>Requirement</b>	<b>Applies to subpart LL</b>	<b>Comment</b>
63.5 (e)	Approval of Construction/Re construction	Yes	
63.5 (f)	Approval of Construction/Re construction Based on State Review	Yes	
63.6 (a)	Compliance with Standards and Maintenance Applicability	Yes	
63.6 (b) (1) through (5)	New and Reconstructed Source Dates	Yes	See § 847 (a) (6) and (7)
63.6 (b) (6)		No	[Reserved].
63.6 (b) (7)		Yes	
63.6 (c) (1)	Existing Source Dates	No	See § 847 (a)
63.6 (c) (2)		Yes	
63.6 (c) (3) and (4)		No	[Reserved].
63.6 (c) (5)		Yes	
63.6 (d)		No	[Reserved].
63.6 (e) (1) (i)		No	See §§ 63.843 (f) and 63.844 (f) for general duty requirement.
63.6 (e) (1) (ii)		No	
63.6 (e) (1) (iii)		Yes	
63.6 (e) (2)		No	[Reserved].

<b>Reference Section(s) ...</b>	<b>Requirement</b>	<b>Applies to subpart LL</b>	<b>Comment</b>
63.6(e)(3)	Startup, Shutdown and Malfunction Plan	No	
63.6(f)(1)	Compliance with Emissions Standards	No	
63.6(f)(2)	Methods/Finding of Compliance	Yes	
63.6(g)	Alternative Standard	Yes	
63.6(h)	Compliance with Opacity/VE Standards	Only in § 63.845	Opacity standards applicable only when incorporating the NSPS requirements under § 63.845
63.6(i)(1) through (14)	Extension of Compliance	Yes	
63.6(i)(15)		No	[Reserved].
63.6(i)(16)		Yes	
63.6(j)	Exemption from Compliance	Yes	
63.7(a)	Performance Test Requirements Applicability	Yes	
63.7(b)	Notification	Yes	
63.7(c)	Quality Assurance/Test Plan	Yes	
63.7(d)	Testing facilities	Yes	
63.7(e)(1)	Conduct of Tests	No	See § 63.847(d)
63.7(e)(2) through (4)		Yes	

<b>Reference Section(s) ...</b>	<b>Requirement</b>	<b>Applies to subpart LL</b>	<b>Comment</b>
63.7(f), (g), (h)	Alternative Test Method	Yes	
63.8(a)(1) and (2)	Monitoring Requirements Applicability	Yes	
63.8(a)(3)		No	[Reserved].
63.8(b)	Conduct of Monitoring	Yes	
63.8(c)(1)(i)		No	See §§ 63.843(f) and 63.844(f) for general duty requirement.
63.8(c)(1)(ii)		Yes	
63.8(c)(1)(iii)		No	
63.8(c)(2) through (d)(2)		Yes	
63.8(d)(3)		Yes, except for last sentence	
63.8(e) through (g)		Yes	
63.9(a)	Notification Requirements Applicability	Yes	
63.9(b)	Initial Notifications	Yes	Notification of re-start specified in § 63.850(a)(9)
63.9(c)	Request for Compliance Extension	Yes	
63.9(d)	New Source Notification for Special Compliance Requirements	Yes	

<b>Reference Section(s) ...</b>	<b>Requirement</b>	<b>Applies to subpart LL</b>	<b>Comment</b>
63.9(e)	Notification of Performance Test	No	
63.9(f)	Notification of VE/Opacity Test	No	
63.9(g)	Additional CMS Notifications	No	
63.9(h) (1) through (3)	Notification of Compliance Status	Yes	
63.9(h) (4)		No	[Reserved].
63.9(h) (5) and (6)		Yes	
63.9(i)	Adjustment of Deadlines	Yes	
63.9(j)	Change in Previous Information	Yes	
63.10(a)	Recordkeeping/Reporting Applicability	Yes	
63.10(b) (1)	General Recordkeeping Requirements	Yes	
63.10(b) (2) (i)		No	
63.10(b) (2) (ii)		No	See §§ 63.850(e) (4) (xvi) and (xvii) for recordkeeping of occurrence and duration of malfunctions and recordkeeping of actions taken during malfunction.
63.10(b) (2) (iii)		Yes	

Reference Section(s) ...	Requirement	Applies to subpart LL	Comment
63.10 (b) (2) (iv) and (v)		No	
63.10 (b) (2) (vi) through (xiv)		Yes	
63. (10) (b) (3)		Yes	
63.10 (c) (1) through (9)		Yes	
63.10 (c) (10) and (11)		No	See §§ 63.850 (e) (4) (x vi) and (xvii) for recordkeeping of malfunctions.
63.10 (c) (12) through (14)		Yes	
63.10 (c) (15)		No	
63.10 (d) (1)	General Reporting Requirements	Yes	
63.10 (d) (2)		No	See § 63.850 (b)
63.10 (d) (3) and (4)		Yes	
63.10 (d) (5)	Startup- Shutdown and Malfunction Reports	No	See § 63.850 (d) (2) for reporting of malfunctions.
63.10 (e) and (f)	Additional CMS Reports and Recordkeeping/ Reporting Waiver	Yes	
63.11	Control Device/work practices requirements Applicability	No	
63.12	State Authority and Delegations	Yes	

<b>Reference Section(s) ...</b>	<b>Requirement</b>	<b>Applies to subpart LL</b>	<b>Comment</b>
63.13	Addresses	Yes	
63.14	Incorporation by Reference	Yes	
63.15	Information Availability /Confidentialit y	Yes	
63.16	Performance Track Provisions	No	

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